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TWELFTH ANNUAL REPORT

OF THE

ILLINOIS STATE

DAIRYMEN'S ASSOCIATION,

Convention at Belvidere, Ill., December 9-11, 1885.

PUBLISHED BY THE ASSOCIATION.

COMPILED AND EDITED BY R. P. MCGLINCY, SECRETARY, ELGIN, ILLINOIS.

THE 13TH ANNUAL MEETING WILL BE HELD AT AURORA, ILLS.,
DECEMBER 8, 9 AND 10, 1886.

CHICAGO:
CAMERON, AMBERG & CO., PRINTERS AND BINDERS.
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TO HIS EXCELLENCY, R. J. OGLESBY, GOVERNOR OF ILLINOIS :

Sir: I beg leave herewith to submit for your consideration the official report of the Illinois State Dairymen's Association, containing the papers, addresses and discussions at its Twelfth Annual Meeting, held at Belvidere, Ill., December 9-11, 1885.

Respectfully,

R. P. McGLINCY,

Secretary.

ELGIN, ILL., January, 1886.

OFFICERS FOR 1886.

PRESIDENT,
H. B. GURLER,
DeKalb, Ill.

VICE-PRESIDENT,
W. R. HOSTETTER,
Mt. Carroll, Ill.

SECRETARY,
R. P. McGLINCY,
Elgin, Ill.

TREASURER,
J. H. WHITE,
Aurora, Ill.

DIRECTORS,
H. B. GURLER, DeKalb, Ill.
L. M. POTTER, La Fox, Ill.
J. L. WITBECK, Belvidere, Ill.
C. C. BUELL, Rock Falls, Ill.
E. J. OATMAN, Dundee, Ill.
W. R. HOSTETTER, Mt. Carroll, Ill.
E. E. CHESTER, Champaign, Ill.

STANDARD QUANTITY AND QUALITY OF MILK.

QUANTITY.—Borden's standard — of eight and five-eighths pound per gallon — is now taken and accepted as the standard of milk, not only in our own country, but in all Europe.

QUALITY.—The Executive Committee of the State Dairymen's Association, after many experiments carefully made, have decided that hereafter the following shall be considered by them as the standard quality of milk in Illinois: Water, 87.5 ; solid, 12.5 — in a scale of 100 parts.

LIST OF MEMBERS FOR 1885-6.

ANDREWS, CHAS. N., Rockford, Ill.	LAMBERT, J. C., Belvidere, Ill.
ANDREWS & BURNAP, Dubuque, Iowa.	LOOP, C. B., Belvidere, Ill.
ALLEN, W. H., Belvidere, Ill.	LINCOLN, O. J., Belvidere, Ill.
ALLEN, A. H., Belvidere, Ill.	MCGLINCY, R. P., Elgin, Ill.
BECKINGTON, O., Belvidere, Ill.	MOON, G. B., Batavia, Ill.
BUELL, C. C., Rock Falls, Ill.	MANN, C. E., Geneva, Ill.
BROOMELL, J. H., Aurora, Ill.	MONRAD, J. H., 17 Dearborn Street, Chicago, Ill.
BARTHOLOMEW, S. K., Marengo, Ill.	MERRELL, RICHARD, Belvidere, Ill.
BOYD, JOHN, Chicago, Ill.	MAREAN, A., Belvidere, Ill.
BARNES, M., Belvidere, Ill.	OATMAN, E. J., Dundee, Ill.
CARR, J. C., Bartlett, Ill.	POTTER, L. M., LaFox, Ill.
COHOON, O. S., Belvidere, Ill.	PEMBLETON, S. S., St. Charles, Ill.
CHESTER, E. E., Champaign, Ill.	PATRICK, R. M., Marengo, Ill.
CALDWELL, E. S., Marengo, Ill.	REED, CHARLES, Belvidere, Ill.
CURTIS, COL. T. D., Syracuse, N. Y.	ROBINSON, A., Belvidere, Ill.
CHAMBERLAIN, M. M., Belvidere, Ill.	REED, GEORGE, Belvidere, Ill.
DUBOIS, F. S., Belvidere, Ill.	SAUNDERS, W. H., Sheffield, Ill.
DILLIE, N. E., 100 Dearborn St., Chicago.	SANDS, FRED., Belvidere, Ill.
FENTON, C. E., Poplar Grove, Ill.	SANDS, GEORGE, Capron, Ill.
FARGO, F. B. & Co., Lake Mills, Wis.	SAGER, FRANK, Belvidere, Ill.
GURLER, H. B., DeKalb, Ill.	SWAIL, ROBERT, Belvidere, Ill.
GLEASON, T. E., Belvidere, Ill.	SEWEL, S., Caledonia, Ill.
GILLIS, HORTON, Big Foot, Ill.	SHERRELL, H. J., Belvidere, Ill.
GEORGE, F. R., 606 Pullman Building, Chicago, Ill.	STOCKWELL, F. S., Belvidere, Ill.
HINTZE, W. H., Elgin, Ill.	SWANN, D. J. & Co., 403 North Clark St., Chicago, Ill.
HOSTETTER, W. R., Mt. Carroll, Ill.	TEFFT, DR. JOS., (Honorary,) Elgin, Ill.
HALE, A. D., Belvidere, Ill.	TODSON, A. C., Elgin, Ill.
INGALLS, RUFUS, Belvidere, Ill.	TRAYER, COVEY & SANDS, Belvidere, Ill.
JOHNSON, LOVEJOY, Stillman Valley, Ill.	THOMPSON, A., Marengo, Ill.
JONES, J. P., Cherry Valley, Ill.	WHITE, J. H., Aurora, Ill.
KILBOURNE, C. S., Oswego, Ill.	WOOD, D. E., Elgin, Ill.
LONGCOR, L. A., Belvidere, Ill.	WITBECK, J. L., Belvidere, Ill.
LAMPERT, FRED., Belvidere, Ill.	WOLVERTON, D. C., Belvidere, Ill.
LUFKIN, G. W., Rockton, Ill.	WILLARD, CHAS. P. & Co., 284 Michi- gan St., Chicago, Ill.
LESPINASSE, R., Hinsdale, Ill.	
LAWRENCE, E. L., Belvidere, Ill.	

TRANSACTIONS
OF THE
TWELFTH ANNUAL MEETING
OF THE
ILLINOIS STATE DAIRYMEN'S ASSOCIATION,

HELD AT

ADELPHI HALL, BELVIDERE, ILL., DECEMBER 9-11, 1885.

The meeting of the Illinois State Dairymen's Association was called to order at 2:30 P. M., Wednesday, December 9, 1885, by J. C. Foote, Esq., who introduced Dr. F. S. Whitman, Mayor of the City of Belvidere, who delivered the address of welcome on behalf of the citizens of Belvidere.

ADDRESS OF WELCOME.

DR. F. S. WHITMAN, BELVIDERE.

Gentlemen of the Illinois State Dairymen's Association:—As the official representative of our city, I have been asked by the Committee of Local Management to speak a few words of welcome to you on the opening of your Twelfth Annual Convention, which it gives me great pleasure to do. Ours is a great agricultural city. Belvidere is tributary to a country whose fertile soil well repays the efforts of the enterprising farmers that till that soil, and these farmers have been quick to see the profit accruing to the dairy farm, and were the first in the State to make use of their opportunities in this direction. Under these circumstances, gentlemen, it seems to me a fit and proper thing that you should hold your annual convention in our city. The time has long since gone by when it is necessary for me or anyone else to go into any labored argument to prove the healthfulness and the nobility of agricultural pursuits. The time will soon come when it will be just as self-evident that any farmer who expects to keep abreast of the times must turn his attention to the dairy branch of agricultural industry. The time will soon come when the person who has not tried this experiment

will be full of conviction of the foolishness of attempting to rely upon the sale of grain crops, and he will make his arrangements to feed out upon the farm everything he raises upon it. In this case he will have a soil always in good condition and a bank account in the same condition, while in the other case he will have an exhausted soil and a depleted pocket book.

I am not here for the purpose of giving advice to dairy experts, but during a trip through Missouri and a portion of Iowa last summer I was favorably struck with the difference in appearance in sections of the country equal in natural qualities, where the farmers had paid attention to dairy products and where they had not; and, I suppose, even an expert may occasionally pick up a good idea from a rank outsider. The best definition of an expert I ever saw was this: A person who knows something about everything, and who knows everything about something. The best treatise ever written about getting on in the world was written by a man who was on the verge of going into bankruptcy, and all the assets he had in the world were the proof-sheets of this book, which, by the way, had a tremendous sale.

A person who had a fondness for statistics lately sent out to many of the prominent business men in the country a large number of circulars, and out of one hundred replies received to these circulars the fact was demonstrated that 90 per cent. of the most successful business men throughout our country were born and reared upon the farm. Gentlemen, this one idea speaks volumes to the thinking man.

But why multiply words. The fact remains and underlies all others that you represent an industry that furnishes the brain and brawn, the muscle and money for the whole country, and, as another has said, while the preacher is supposed to minister for all, the lawyer to get justice for all, the physician to heal all, the farmer pays for all.

As the representatives of this industry, which is the foundation of all true progress and prosperity in every country, we bid you a thrice hearty welcome to our city. We feel honored by your presence, and we assure you that in any efforts which you may put forth to put honest goods upon the market, branded just exactly what they are, no matter whether they come from the pork packers of Chicago or the creameries of the Northwest, you shall have the undivided support of all of our citizens.

We have an idea that your meetings will be beneficial both to yourselves and to us, and we cherish the hope that while you leave with us the butter and cream of your thought, you may carry away from us such pleasant recollections as shall induce you in future to come and see us again.

RESPONSE.

R. P. M'GLINCY, ELGIN, ILLINOIS.

Mr. Chairman, Ladies and Gentlemen; Mr. Mayor:—On behalf of the Illinois State Dairymen's Association I desire to accept the earnest and hearty welcome which you, sir, have been pleased to offer us on this occasion; and in accepting for my associates this welcome, I do so with the full belief and understanding that it comes from the heart, and is not mere words uttered for the sake of being heard. There are those of us who know Belvidere, for if I mistake not, this

is not the first time that a dairy convention has assembled in this city. Indeed, sir, if I remember correctly, some fifteen or may be eighteen years ago a convention, perhaps one of the first dairy conventions held in the Northwestern States, was held in the city of Belvidere; held at a time when the agricultural people of the Northwest were burdened under a debt from which it seemed almost impossible for them to escape. Their farms were mortgaged, taxation was eating them up, and they had not the wherewithal to meet the incumbrances and keep their heads above water. But, as you all know, a large portion of this section of country was settled by those sterling people from York State, who had seen what could be done in the Empire State by using the cows, and they began to think that even here in this Northwest, on these broad prairies, where the water is pure and where the atmosphere is pure, that butter and cheese might be manufactured profitably.

These gentlemen conceiving this idea met together from the neighboring cities and formed, if I mistake not, the Northwestern Dairymen's Association, which will soon celebrate its twentieth anniversary. A citizen of one of your neighboring cities was elected president, and through his energy and intelligence the Association was placed upon a good, solid basis; instruction was given to the farmers, and they have been benefited not alone by that meeting that was held here, but by every meeting that has been held in the Northwest ever since, for these conventions are simply educational institutes. Dropping a fact here and there, teaching this or that one how to proceed in his business, and leaving with them the very cream of the best thoughts of the whole country when they are assembled in these conventions.

Why, sir, you may in your mind's eye go back to the time when even this section, now famed and noted for its fertility, could not produce sufficient grain to support the farmer upon the farm. The continuous growing of grain had exhausted the soil, and as a result the farmer was obliged to turn his attention to something else, and in doing so happily he struck upon the idea of combining with his other farming operations dairying, and it has proved a Godsend to the people of this section as it has to the people in other parts of the Northwest.

I remember the first time I ever passed through this section of country, perhaps seventeen or eighteen years ago. I did not then see the marked evidences of prosperity that are to be found upon every hand to-day; neither did I see the herds of cattle grazing upon the prairies as they are to be seen to-day. The fine barns were not there, the comfortable houses were not to be seen, the prosperous farmers were not to be seen, but, on the contrary, you saw the farmers with long faces and poor houses, and inconvenient barns with poor stock upon the fields. You seemed to be burdened to death with the debt from which you could never raise, and yet they have been enabled not only to pay off those debts, but I doubt not that many of the farmers of this section of the country are depositors, if not stockholders, in your national banks; and all this prosperity is because they have turned their attention to a business which was productive. They have been careful and painstaking, and we see the evidences of it all around.

The industry of the dairy in the State of Illinois is a grand industry. It combines an unusual array of wealth. Indeed, as I learned by a circular issued a short time ago, there are one million cows in the State of Illinois, which are

valued at something over \$30 per head, giving us over \$30,000,000 in cows alone in the State of Illinois. Add to this the production of butter and cheese and the value of tools, machinery, etc., you will see it gives a very large figure. We are all aware that there is an insidious enemy encroaching upon this territory which, if not sooner or later destroyed, will destroy this industry—the greatest that has ever been developed in these Northwestern States.

When we consider for a moment the jeopardy in which this industry has been placed by a few men engaged in the manufacture of a counterfeit product, I am surprised to know that greater action and greater effort has not been made to suppress the manufacture and sale of this counterfeit product.

If I should locate here in Belvidere and undertake to manufacture counterfeit money, every citizen in the town would cry out and every officer of the government would have his hand down on me at once; but I may locate here and start a butterine manufactory and manufacture the counterfeit with a counterfeit brand upon it and no one would say "Nay" to me. There is no law to prohibit me from counterfeiting food product. There is no law to prevent me from manufacturing butterine and placing the brand "Witbeck Creamery" upon it if I please. No one can stop me. Do you know that in the city of Chicago alone, in the space of four months, the butterine manufacturers can put on the market more butterine than these one million cows of the State of Illinois can make of pure butter in twelve months? And can you tell me that this industry is not in peril? That it does not call for wise counsel and for laws that will save it, and save the men and save the farms, and save the farmers' wives who have built up this industry?

It seems to me that the time has come, is already at hand, when something ought to be done, when this Association that we represent, being a State organization, should take the lead in this movement and put forth some effort that would suppress the sale of a counterfeit product.

There is no sense and there is no reason why a man or any set of men should go to work and willfully manufacture that which they are afraid to sell under its true name. Why, stop and consider for a moment and look around you. I see my friends who have been engaged in farming for years, and who by reason of their intelligence and their patient toil have been enabled to secure the confidence of those with whom they deal, and thereby get their heads above the tide. Is their business to be slaughtered by these men and by this product? It seems to me that our law-makers ought to step in and give us some law by which this industry may not be driven from the land.

A few weeks ago I met Senator Cullom at Springfield, and in a hurried conversation about the dairy industry of the northern part of the State he said the most damnable outrage that was ever perpetrated upon any honest industry was perpetrated at Chicago, when the State Board of Agriculture admitted butterine to be exhibited in the Fat Stock Show beside the pure dairy butter. Let me tell you, it is only a question of time, in my opinion, and not a very long time either, when every creamery, every cheese factory in the State of Illinois, will be closed up unless something is done to prevent the manufacture of a counterfeit upon pure butter. It is utterly impossible for the farmer who feeds his cows with the grain that is grown upon his farm to compete with these men, who go into the slaughter houses and buy the refuse fat and manufacture it

into a product to place in competition with the pure creamery butter and the cheese that is made upon the farms and in the cheese factory. And it does seem to me that during this convention something ought to be formulated that will set our people thinking, studying over this matter, and give an intimation to our law-makers when they go to Springfield to make laws that it must be decided as to whether this manufacture shall live or whether the industry that gives employment to so many thousands in this section of the State shall be murdered by three or four hundred men, who are working in the dark corners and alleys in the larger cities and manufacturing a product that is neither healthful nor honest.

To show that this matter is awakening attention among the people of this country, I will read a few resolutions that were adopted in Ohio a few days ago, and I will say that these resolutions did not emanate from a manufacturer of butter, but from a farmer who owns a dozen or fifteen cows, and I believe these resolutions, strong as they are, will receive the indorsement of every one in this hall, and I believe that when they are spread upon the records of this Association and other associations they will call the attention of our law-makers to these facts and we may possibly get some relief, so that our farms may continue to be as remunerative in the future as they have been in the past.

These resolutions were offered by Mr. Coil, of Shelbyville, and read as follows :

"Resolved, That this association extends its sympathies to the dairymen of Illinois at the insult offered them, the surrendering of their rights, and the betrayal of their trust by the State Board of Agriculture, at the exhibit made by the Cheese, Butter and Egg Association last held at Chicago, in admitting bogus butter and cheese made in Chicago, with the excuse that the creamery men adulterate their goods, too, a statement which we believe to be false.

"Resolved, That it is the duty of the Board of Agriculture of any State to promote, foster and guard the agricultural interests of that State, and we view with alarm the action of said Board, and can account for it only upon the grounds of imbecility or treason.

"Resolved, That a copy of these resolutions be forwarded to the Secretary of the Illinois State Board of Agriculture, the Secretary of the Elgin Board of Trade, and R. M. Littler, Secretary of the National Butter, Cheese and Egg Association."

While these resolutions arraign our State Board of Agriculture, I know there are, of course, honorable exceptions upon that Board, and we have one of them here to-day who I know used every possible means in his power, and protested with every breath that he could draw against the admission of this product. I refer to the Hon. Mr. Chester, of Champaign.

In this great State of Illinois where so much has been done by this industry, where such a large percentage of the taxes of the State are being paid by the farmers, it does seem to me that the State Board of Agriculture should not have insulted the dairymen of this State by admitting a counterfeit food product for exhibition, and particularly after they had called upon the dairy farmers and the manufacturers of butter and cheese to make an exhibit at the Fat Stock Show. In other words, they should have said to the butterine manufacturers of the State, "Away with you; we want neither your money nor your product." But they admitted it, and we have got to stand the brunt of it.

The State Board went further. They insulted every creamery man of the Northwest by insinuating that they were adulterating the butter and cheese which they offer to the people of the country; and further, they required every exhibitor of butter or cheese to come up and make an affidavit and swear before the Most High that the butter and cheese exhibited by them at the Fat Stock Show was made of pure cream and milk only, and let me say to you that it affords me an immense amount of satisfaction to be able to state that not a single exhibitor from Illinois refused to make that affidavit, plainly showing that the exhibitors were honest in their endeavors to give the people a pure, genuine product.

I don't want to condemn the State Board of Agriculture. They may be as honest in their motives as you or I, yet I think they made a mistake. It would seem to me that if they had the proper interests of our State at heart they would not have based their action on the mere say-so of Mr. Armour or anybody else that the creamery men were adulterating their product, but, on the contrary, they would have demanded the names of the creamery men who were adulterating their product, if any there were, and would not have assumed, as they did, that a statement made by these manufacturers of counterfeit butter was correct and true unless it was backed up by some other statement than theirs.

I apprehend that during the session of this convention this question of butterine will be touched upon more or less, and I would desire everybody who feels at all interested in the matter to state their mind freely on that subject, and let Mr. Chester when he returns home and goes down to the meeting of the State Board of Agriculture be able to tell his associates that the dairymen of Illinois, not only the manufacturers of creamery butter, but the men who are the producers of the milk on the farm, want nothing more to do with the State Board of Agriculture if in its wisdom it shall decide to hold a dairy fair next year and admit butterine as an exhibit, or if they accept the \$2,000 offered by the butterine men to be offered as premiums.

Let this convention take action which shall be unequivocal in this matter, and I believe we shall have the support not only of the people in this part of the State, but from other parts of the State.

There is a programme prepared for this convention of papers to be offered here, but we wish it to be understood that the convention can be made profitable only so far as the people will take hold and endeavor to draw out the speakers upon questions not touched upon in the papers and addresses.

Now, Mr. Mayor, I desire to return to you and through you to the citizens of Belvidere our earnest and heartfelt thanks for this cordial reception which you have tendered us here to-day.

ANNUAL ADDRESS OF THE PRESIDENT.

H. B. GURLER, DE KALB, ILL.

Ladies and Gentlemen and Members of the Convention:—This is the twelfth annual meeting of the dairymen of Illinois, for the purpose of exchanging ideas and experience and to devise means to sustain and promote the dairy interest of our State. This is all proper and it is necessary, for life is too short to learn much by our personal experience. Let us remember that the Good

Book says it is more blessed to give than to receive. Let us also remember that we can give information without diminishing our stock, in fact I think we increase our information by imparting to others in a convention of this kind, for it causes discussion which draws out ideas of much value to us all.

In giving information let us not hesitate to talk of our mistakes as well as of our successes.

I know our failures are not as a rule pleasant subjects to talk about, but we can benefit one another as much by giving that side of our experience as we can by giving the more pleasant one of success. We make some failures that we need not be ashamed to acknowledge. For instance: a farmer in my neighborhood once undertook to grow 100 bushels of corn per acre. He worked diligently all the season on that field and left nothing undone that his experience and information taught him would add to the yield of corn, but when the field was husked and weighed, he learned that he had just 96 bushels per acre. If we can make enough of this kind of failures we are all right, but when we start out to grow 40 bushels of corn per acre and get but 30, we are making a miserable failure, one that means no profit for our labor. I think every dairyman and farmer should have some definite plan to work to. For instance: he should try to grow 75 to 80 bushels of corn per acre, and he should not be satisfied with less than 60 bushels of oats per acre, neither should he be satisfied with a less yield of hay per acre than two and one half tons, and three tons can frequently be obtained. The pasture can be made to carry one cow per acre with fall feed and a little fodder corn in its season. If our land will not produce these yields there is something wrong, and it is more likely to be with the farmer than with the farm, and my advice is to commence catechising ourselves by asking, What is the matter? Is our land impoverished by continual selling hay and grain? if so, stop it and secure cows, or other stock enough to consume all the grass, hay and grain produced on the farm, and mill feed equal to the grain produced on the farm. In this way the fertility of the farm will be increased and the profit will be increased in a much larger ratio than the yield per acre of crops. The trouble may be that we have abused the farm by not properly tilling it. Perhaps the soil has exhausted itself growing a crop of weeds equal to the crop of grain grown. This affects the farmer's pocket book worse than the contribution box on Sunday morning, but the chances are he does not see it that way. It is sometimes hard to realize that we have lost anything that we never had in our possession.

Hon. Hiram Smith, of Wisconsin, is planning to keep 100 cows on 200 acres of land. He may fail (though I don't believe he will), but he will make money trying. He will be like the farmer trying to grow 100 bushels of corn per acre.

There are many ways in which most of us can improve on what we are now doing. If we would put our brains to work, we could make the cows produce 20 per cent. more milk, thereby doubling the net profit. Do you ask what more you can do? do all you can, don't try to see how little time you can spend with them, but rather try and see how much you can do to make them comfortable. They will pay you well for it.

The calves can doubtless be made to grow one half pound per day faster, thereby doubling the profit of our work. Don't think you cannot take good care of your stock because you have not a barn costing from \$1,000 to \$2,000,

for it need not be so. Stock can be made comfortable in stables that will not cost for lumber to exceed four dollars per head of stock.

The pig, a necessary adjunct of dairying, is the least understood and the poorest cared for of any of our farm animals. Many of us keep them until eighteen months old to make them weigh 350 pounds, when we might make them weigh 300 pounds at nine months of age and double the profit by the short method.

Now let us take a look at the past year's work in dairying. The dairymen have realized less for their milk in 1885 than they did in 1884. Taking our home factory dividends as a basis to figure on, the calendar year of 1885 was 14 per cent. lower than 1884. Comparing the eight months from May to December, inclusive of the two years, and 1885 was 7 per cent. lower than 1884. Comparing May, June, July and August of the two years, and 1885 was 4 per cent. lower than 1884.

Now, who will tell us why there is but 4 per cent. difference in the summer months of 1884 and of 1885, when there is 14 per cent. difference for the whole year? is it probable that bogus butter has anything to do with it?

Taking the highest price of hogs in each month of 1884 and 1885, I find that 1885 has been 30 per cent. lower than 1884.

Taking the beef market in the same way and I find that 1885 was 14 per cent lower than 1884. Horses have been at least 15 per cent. lower in 1885 than in 1884. I do not see that the dairymen have cause to complain of their work so much as most other lines of farm work. Let us not loose our grip, but go on with our work and improve our dairies by weeding out the cows that make us no profit and filling their places with the offspring of those that do make us a profit. One thing is certain, that milk producing will always be more profitable for a term of years than other lines of farm work, for this reason: farmers will not milk cows unless it pays better than other lines of farm work which are not so confining. Let us hold our grip; those that drop out of the line now will feel like kicking themselves or asking their neighbors to do it before they can get back into line again. Most of us have seen dairy products lower than they have been the past season. I have had choice creamery butter sell in New York for 14½ cents per pound.

The bogus butter question is one that demands the attention of all producers and consumers of pure butter.

Probably you all know that the National Butter, Cheese and Egg Association held its convention in Chicago at the time of the Fat Stock and Dairy Show. All the dairy States were represented and many of them by delegations. The main question under discussion was butterine and oleomargarine. The convention spent most of its time on this important question. The bogus butter men were completely routed in the convention, but at the same time they were deluding our State Board of Agriculture, the Board having at a meeting, before which the butterine men appeared and pleaded their case, decided to admit butterine to be placed on exhibition in a room adjoining the dairy show. I don't understand why our State Board did not give us an opportunity to defend our cause; I am confident that they would have acted far different if they had heard our side of the case.

It seems hardly fair to have our friends accept statements from our known

enemies and give us no opportunity to defend ourselves. We knew that the butterine men had made application to Mr. Chester, the dairy superintendent, for permission to make a display of their goods, and had met with a point blank refusal, and we supposed that would end the matter. The Board accepted statements from the butterine men and allowed them published to the world, which would not have been accepted as evidence anywhere, unless it be before a grand jury. If the Board had been our enemies they could hardly have done us more harm.

Our legislature does not meet until after our next annual meeting. In the meantime we shall see the action of our sister States and shall be able to profit by their experience. I cannot believe that the dairy interest is to be ruined by this parasite. There is no question but what the profit that should go to the dairy-men is now going into the pockets of the makers of and dealers in bogus butter. All the consumer's pocket has been benefited is to the extent of the depression of the general butter market, caused by the sale of an immense quantity of lard, tallow and other compounds as butter. It has benefited the consumer no more than the importation of an equal amount of butter. Some of our prominent creamery men have been recommending an organization of manufacturers of and dealers in pure butter, for the purpose of putting ourselves in shape to do effectual work. I am confident this is a wise move and a necessary move. We can do nothing without organization. Let us not spend the time of this convention throwing dirt and calling hard names, that can only weaken our cause, but let us rather spend our time in strengthening our cause in all honorable ways, that we may have all available strength to carry on the warfare between pure and adulterated dairy products.

APPOINTMENT OF COMMITTEES.

ON MEMBERSHIP.—F. Sager, F. Stockwell, O. J. Lincoln, John L. Witbeck, O. S. Cohoon and J. H. White.

ON PRESIDENT'S ADDRESS.—C. C. Buell, J. L. Witbeck, R. Lespinasse.

ADDRESS.

E. E. CHESTER, CHAMPAIGN, ILL.

Mr. President, Ladies and Gentlemen:—This is pretty near taking me by storm. When I left my home with the intention of attending this convention, I expected that it would be for a purpose, and that purpose is just the same thing that attracted me to your neighboring city of De Kalb a few years ago.

My object in coming to your convention was to learn something of the dairy interests of Illinois. My object in coming from my place to this place, was not to act as the attorney of the State Board of Agriculture. I am utterly surprised at my very first entrance into the door of your convention, that myself and my brother members of the honorable State Board of Agriculture of Illinois are on trial, and the charge against us is treason and imbecility, but, as I am diverted entirely from my intentions and from my course, and as I am compelled to say something, I hope you will hear me candidly and that we will meet with a little charity.

I came here with no malice towards any dairyman that lives, with no

malice in my heart for any of the hard words that have been said against the State Board of Agriculture.

We know that we are the servants of the public, the people of Illinois, and as servants we have a right to expect your criticism and your censure, and, as the custom is, your cuffs and your knocks, for servants are in the habit of receiving just such things.

Two years ago I attended your convention. I was then a member of the State Board. I stated to your people that I believed the time had come when the dairy interests of Illinois should be known and represented on that State Board of Agriculture. The time had come when some action should be taken towards bringing up the fact that the dairy industry was one of the most important industries of the State.

I asked your honorable body of gentlemen to send a committee to meet the State Board of Agriculture at their annual meeting for the purpose of doing something for the furthering of your interests. It seems that at that meeting such a committee was appointed, but for some reason they failed to meet us at the annual meeting.

At a call meeting in Chicago afterwards the committee put in their appearance. Our Board asked them to conduct a dairy show in connection with the Fat Stock Show, appropriating them \$500 in good money, and assuring them that they would lend them their very best efforts towards securing contributions amounting to at least \$2,500 more, making \$3,000 in all, for the purpose of holding a dairy show in connection with the Fat Stock Show, and to be held under the auspices of this Illinois Dairymen's Association. By some means or other, and even after the \$500 had been assured them, no effort was made.

In their conversation with the members of the Board it was recommended by our President at the annual meeting that the State Board itself should hold a dairy show at the State Fair, and the recommendation of President Landrigan was considered by the Board, and instead of holding the dairy show at the State Fair, it was decided to hold it at the Fat Stock Show, as the weather at that season of the year was better, and the time and place both seemed to be more appropriate.

Now, my friends, you know that that Board of Agriculture consists largely of farmers. Nearly all of them are farmers, and I am sorry to say that not one of them is a very extensive dairyman, and in making the arrangements for this show, in getting up the classifications for the premiums, and all the details of the arrangements, prominent dairymen of Illinois were conferred with, and some of these men are within the sound of my voice at this minute, and suggestions were received, and were asked for, and acted upon as well as could be. We succeeded in getting out a classification, which, to my mind, with the present information I have on the subject, is very unsatisfactory. It does not teach us the things that were intended to be taught in that show, but we believed that the dairymen of Illinois would look upon us with some charity, as it was our first show, and we do believe that with your assistance, we can get a better classification, we can get a better system of judges, and we can have a better show in the future, with your assistance and encouragement.

Let me say right here that I hope this Association will send a committee on the 4th day of January to the annual meeting of the State Board to confer with

our Board, and to make such suggestions in the interests of the Dairy Association and for the other dairy interests of Illinois as may help this matter along, and I am requested by members of the State Board of Agriculture, not officially, but individually, to ask you to appoint and send to us a committee, which will give us information which we will be glad to receive.

But, there are particular facts that you want to know about. I went back to bring up the history to the dairy show. I am willing to confess that on the morning of the opening of the show, when I saw that the large space, 240x75 feet, devoted to dairy implements, was absolutely full, not an inch to spare, and yet everybody seemed to have been accommodated with space; when I saw that the dining room, as used by the Exposition Company, was almost entirely full, the tables were filled with butter and cheese product, I confess, gentlemen, that I felt no small degree of pride to think that I had encouraged the dairymen to bring out so large and so fine an exhibit.

As I was going about my duties there, a gentlemen presented himself to me and asked me where I proposed to locate the butterine. Said I, "My good friend, if you will be kind enough to go to the Honorable Mr. Davids, the superintendent of the hog department, he will tell you where to locate it—that is where it belongs." I supposed that I was done with the enemy of the dairymen, but, unfortunately, I was not. At the first meeting of the Board a resolution was introduced requesting the superintendent of the dairy department to admit oleomargarine and butterine in the dairy department. After a tussle of two hours we succeeded in defeating the resolution. I supposed then that it was done. As the time went on and we all of us got absorbed in our duties, and if any of you know anything about the management of such affairs, you know that one that takes an active part in the management of a fair or show, becomes absorbed with his duties, and when time had rolled on and we had got absorbed, the question came up again. A friend sent me word that the oleomargarine question was before the Board again, and demanded my attention, and, unfortunately, the fast friends of butter on that Board were partly absent.

They succeeded not in placing it on exhibition, as has been represented by the press in some instances, not in putting it beside the legitimate butter, but they succeeded, as they said afterward, if they could'n't get a full meal, "please give us the crumbs from your table." They got an out-of-the-way place that we could not use, and got permission to put some tables in and put butterine on them and show it as butterine and oleomargarine, not as butter.

I did so much regret that our good friends—and we have one of them right here—when they were sent out as a committee by the Butter and Cheese Association, came back and reported to the public that it had been admitted in competition with and alongside of the dairy product. I want to say to you, gentlemen, and I know what I am talking about, this is a mistake. It was not admitted alongside of or in competition, in any form or sense, with butter. It was simply given an out-of-the-way place in the building, and that I objected to, and that a majority of the Board, I believe to-day, if that majority could have been reached, would have objected too.

The majority of the board believe, and in fact every member of the Board believes, that oleomargarine and butterine whenever they present themselves as a substitute for butter are frauds, and as frauds they ought not to be recognized.

They were not placed there with the view that they should receive any recognition or any endorsement whatever from the State Board of Agriculture. They did receive no more endorsement than the Thorley Food did when it was permitted to take a place in the show that was not occupied by our regular exhibit, and so with other things. I believe that the Board had no intention in locating that exhibit in that building, but to give you, my friends, and other dairymen a chance to find out. If it is a good thing the world ought to know it; if it is the bad thing that we know and believe that it is—because it is a cheat and a fraud—then the world ought to know how to detect it on sight. The Board believe that people should be better educated, and know how very easy it is to be deceived when they think they are buying pure butter, and are buying a fraud and substitute which is called butter. They believed they were doing you a favor, but it seems they were not. I regret it very much. I regret that it should have brought up the feeling that it has.

Now, my friends, I can account for it in a very different way. You know that there was a Butter, Cheese and Egg Association in convention at the time, and that the sole object, the determined effort of that large body of honorable gentlemen was, if possible, to annihilate butterine and oleomargarine, and I am sorry that in doing that they prepared the minds of the dairymen for war, and war upon their friends; and I do assure you that the members of the State Board of Agriculture are your friends. And to show you that that is true, I will state that it is the universal voice of that Board, without one solitary exception, that if you men desire legislation in this State they will work early and late—they will do all that is in their power to have laws enacted to punish a man, and punish him with just such punishment as he merits and deserves, if he sells you a pound of butterine as something else; if he sells you less than an ounce of it, on your plate, and pretends that he is giving you pure butter, that Board will help you and do all in their power to secure the punishment of that man.

I am sorry that so many mistakes have been made in these resolutions read here a few minutes ago. It speaks of the National Butter, Cheese and Egg Association holding the dairy show in Chicago. I supposed all this time that the Illinois State Board of Agriculture was holding this show. I think that a great many words have been said on both sides of this question. I think that members of our Board have been personally annoyed and worried, and that many things have been said that had better never have been said, and I do believe that it is the business of this convention, rather than to take up and try and bring to judgment their friends, the members of this State Board of Agriculture, I believe it is their business to find out how we shall cope with this enemy to good butter, by making our product so good that others cannot be sold in the market, and also enacting such laws as shall prevent them by any means selling their goods for anything more or less than just exactly what they are.

DISCUSSION.

MR. BUELL: I had the pleasure of meeting the State Board of Agriculture at Springfield last winter, and discussing this subject of the dairy fair with them, and I wish to assure the members of this convention that I was received

with every mark of courtesy and consideration to which any man could be entitled as appearing before that Board as a representative of this body, and I came away with the impression that the State Board of Agriculture was really a friend of the dairy interests of the State, and that everything would be done which that Board could do to advance the dairy interests of the State in connection with the dairy fair; therefore, you can understand that it was a matter of very great surprise, as well as chagrin, that the State Board should take the action which they did upon this subject. It seemed to me that they were really going back on their own record in this connection. But I am satisfied, Mr. President, that it is only just to that Board for me to believe at least that they simply made a mistake.

But, it seems to me that this butterine, which is simply a parasite of butter, ought not to be permitted to gain a status with the State Board of Agriculture. It has no status now—it is simply a product of lard. It is not definite enough to be treated with, and so far as dealing in it is concerned, it is done in a fraudulent and deceptive way.

Now, how did it get into this Fat Stock Show? why, precisely as those persons we read of in the parable who did not go in the door of the sheep fold, but climbed up some other way. That has been the practice of the butterine business—to climb up some other way; to come up as a fraud and a deception, and it seems to me that until the butterine men will pursue an honest course, I do not see how it can gain a fixed status, and right there is the trouble with this matter. They did give it a status. Now, what the dairy interests of the future want to know, is, whether they are going to continue to do so, or to do something different?

If butterine, as such, is to have a status with the Agricultural Board, it seems that it must tend to alienate the attention, the respect of the dairy interest, as the dairy.

As to the honorable intentions of the State Board of Agriculture, I have not the least doubt, but still we do want to know just what they are going to do on this butterine question. We need their help to secure the enactment of wholesome and just laws with respect to these interests, and just here I may say that it is going to be no controlling argument against butterine that the butterine interest is damaging to the dairy interest. Whatever is of interest to the public will be done in spite of any particular interest that may be affected, and that is the ground we must take—the public are interested in this matter. It is for both interests that proper legislation should be had relative to it. The dairy interest is only one of numerous interests, and we shall have to ask for that which conserves the interests of the public. What we want is some legislation in this particular, which will oblige these people to sell their product for what it is, and then if people want it let them have it.

MR. BOYD: I was astonished at Mr. Chester's statement that the dairy interests of the State were not represented by the State Board of Agriculture. It seems to me this should not be so, and I have no doubt that some of these gentlemen who voted in favor of presenting this oleomargarine in the exposition would resign very willingly, and let some of the dairymen take their places.

MR. LESPINASSE: I like to give credit where credit is due, and at the same time, we should place squarely before this body the position in which the dairymen of the State of Illinois find themselves to-day in reference to the

State Board of Agriculture. Our quarrel, gentlemen, is with fifteen members of that State Board of Agriculture. That State Board was elected as representatives of the people of the State; and there are some of the members who have so failed in representing the State faithfully that if they will not resign, I believe it is the duty of this Board to ask them to do so. At any rate, it is our bounden duty to see that at the next election they are laid on the shelf for ever and ever.

In this action of the State Board of Agriculture in reference to the butterine question, the mistake could be excused, and I would be the first to try to pour oil on the troubled waters, if it had not been for their further action, when they willfully and maliciously libelled the dairymen, not only of the State of Illinois, but of the whole country, by throwing mud upon the representatives of the dairy interest; that was a little too much and it cannot be excused.

Now, our position with the State Board of Agriculture is this, that fifteen of the members of that Board were given the trust of the people, and when the time came for them to show their colors and show they were our friends, they failed.

MR. HOSTETTER: I do not think we can blame the Board as much as some of these gentlemen do. There were farmers there, stock raisers and hog breeders, who got up a petition and signed it, and handed it in to the Board, and said that this butterine was the product of the hog, and they thought it ought to have a place in the show. I think we ought to talk this matter over without any hard words. There is no use in denouncing the Board or the oleomargarine men. If there is a market for their stuff they are going to sell it. The Board gave them a place as a product of cattle, and I do not think there is anything very much out of the way in it. Of course it is an injury to the dairy interest, but I think if we make them sell it for what it is we will reduce the injury very much.

MR. JOHNSON: All this talk against the State Board of Agriculture seems to me a little out of place. I was only in Chicago one day, and I got my ideas from the press, and I was ready to murder them, but the statement Mr. Chester has made so fairly, puts a different light on the matter. We cannot expect these gentlemen to take the same view of the dairy interest that we do who have been brought up side by side with the cow since we were children. The only thing that I can see that they did out of the way, was to give us a hit afterward. Every man that runs a factory about Elgin was making bogus butter, they insinuated. Now, I run a factory, but it didn't hurt me. I believe there were but very few people that believed it, and if they did, I do not think they would pay thirty-two cents a pound, as they have done this week, for Elgin butter.

It was moved by Mr. Buell that a committee be appointed to formulate the sentiments of this convention in reference to the subject under discussion, a part of the duty of that committee being that they should recommend proper action of this convention with reference to it.

Motion seconded and carried.

Convention adjourned to meet at 7:30 p. m.

Convention met pursuant to adjournment at 7:30 p. m.

Music—Belvidere Quartette.

FARMING, ETC.

BY MRS. J. C. LAMBERT, OF BELVIDERE, ILL.

As it is so, the powers that be,
 Have given thus this task to me,
 'Tis with misgivings not a few,
 Before this honored body, too,
 That I approach my chosen theme,
 Which may to some quite humble seem,
 Yet when a backward glance is thrown
 O'er history's page, from zone to zone,
 There Agriculture leads the van,
 A power in civilizing man.
 And where her standard is most high,
 There people surely will outvie,
 As farming ever underlies
 All other business, and the prize,
 Unless she prospers, is not won
 By any class beneath the sun.
 For all must have their daily bread,
 Forego all other things instead,
 And none could rise to high estate,
 With struggle for existence great.
 'Tis useless then the steps to trace,
 The progress of the human race,
 Its rude attempts, its advance slow,
 Up to the present, which can show
 Such grand achievements, all combine
 To lighten labor and refine.
 Our nation undisputed stands
 Herself the peer of other lands,
 And also does our Prairie State
 Second to none, all grandly rate,
 With acres broad and fertile fields,
 Whose wealth so gracefully she yields,
 And o'er her wide domain doth roam
 The fine sleek stock, which finds a home
 In buildings which much better are
 Than our forefathers' dwellings were,
 While they, for all this thoughtful care,
 Will profit to their owners bear,
 In many ways, which once was lost,
 E'er brains prevailed and counted cost.
 For all have found that working hands,
 Which trained intelligence commands,
 Will ever bear away the crown
 From those without, which must go down.
 The thoughtful farmer in his course,
 Has found the dairy quite a source
 Of profit, and some think it pays
 Better than farming other ways.
 It surely has advantage great;
 The farmer has not long to wait
 For his returns, while o'er and o'er
 The money used may make still more.
 It not detracting from the land
 Much substance to it does remand.
 Then, from a moral point of view,
 It steady habits teaches too.
 As men at night must be at home,
 When time for milking shall have come,
 For 'tis a task which must be done
 At rising and at set of sun.
 Some one much wiser far "than me"
 In dairy lore, has said that we
 Should e'er to cows as ladies speak,
 In accents gentle, mild and meek,

And for the sweet lacteal flow,
 The milk of human kindness show,
 While they these compliments repay
 In rich returns, from day to day.
 If this is so, and practiced, then,
 How much refined will grow the men.
 The factory great relief does bring
 To farmers' wives, in lessening
 Their work, thus giving them more time
 For recreation, books and rhyme.
 The honest farmer, who has been
 Proverbially thought quite free from sin,
 They say of late is up to tricks,
 As water with the milk he'll mix.
 And some are known, tho' strange it seem,
 To send the milk and keep the cream.
 And when the dividends appear
 Are wont to say, "they think it queer
 That they should be so very small,
 This business does not pay at all.
 If things are run on such a scale,
 The factory must surely fail."
 And so it may; for water ne'er
 Will butter make, or skim-milk e'er
 In dollars and in cents repay,
 Like milk that's pure in every way.
 Now I much rather would refrain
 From speaking of this well-known bane.
 A farmer's daughter, a farmer's wife,
 I prize their honor as very life;
 But evils ne'er can be reformed,
 Unless their citadel is stormed,
 Thus bringing into disrepute,
 All things, which virtue would uphold.
 And when good people all uphold
 That honest milk, both bought and sold,
 Is of the Christian virtues one,
 The millennial then will have begun.
 Now I would have none understand,
 That from the farmers of this land,
 I'll aught detract, or think that they
 Are not as good in every way,
 As any class, for you will find
 They'll average well with all mankind.
 Their homes much of refinement show,
 As 'cross the threshold come and go
 Their manly sons and daughters fair,
 Who in life's battle nobly bear
 Their burdens, and oft occupy,
 Our nation o'er, positions high.
 For they the lesson well have learned,
 That all worth aught in life is earned
 By labor, it the magic key
 To all earth's treasures sure must be.
 Tho' weary we may often grow,
 And think we reap not all we sow,
 The golden harvest ever stands,
 For ready hearts and willing hands.
 As those before for us have sown,
 Let us not work for selves alone.
 Adown the years that's yet to be,
 Good seed we sow, may many see,
 Springing where it hath taken root,
 Bearing abundance of good fruit.

Music—Apollo Club.

Song—H. C. Boutwell.

FRAGMENTS WORTH SAVING—WHAT AND WHY ?

H. W. AVERY, BELVIDERE.

The greatest teacher and the wisest counselor that ever lived upon this earth, after miraculously increasing the five loaves and two fishes to an amount necessary to satisfy the hunger of ten or fifteen thousand persons, said to His disciples, "Gather up the fragments that remain." Why ? That they might preserve them as a foundation for the next meal ? No ! That they might sell them in the market ? No ! Simply "that nothing be lost." This, in short, answers the question, Why are fragments worth saving ? Because they have a value, and having a value, should not be lost. If it be true, as it is asserted, that no particle of matter under the Divine supervision is ever lost, then certainly no fragment of any kind under human control should be lost, because it has some value, the amount to be determined by the circumstances. There must have been a value in those fragments which the disciples were commanded to gather up, or He who understood the relation of things one to another, perfectly, would never have given this injunction.

Taking this example of our divine Guide, let us for a few moments consider some of the fragments that we, as farmers generally, or as dairymen especially, are losing, but which, if gathered up and put to proper use, would represent a value by no means to be despised. Among the many fragments lost, are fragments of time, of material, of force, of energy, of experience, of opportunity, of equilibrium, and of moral character. These are so inseparable, the one from the other, that any waste of one involves waste of another, therefore our consideration of them must in the main be somewhat general. The engineer who puts on more steam than is necessary to insure his safe arrival at a given point at the required time, wastes not only water and fuel, but the wear of the machinery, and the nerve power of the passengers. The person who loses a fragment of the early morning, the most valuable time of all the day, thinking he can recover it before night, generally fails in his calculations, for the late rising naturally causes irritability, or loss of equilibrium, commonly called loss of temper, and results in harsh words to wife and children, of which he ought to be ashamed, neglect of bible reading and family prayer, the most valuable preparation for a prosperous and happy day, a hasty devouring of the breakfast, involving an unnatural tax upon the digestive organs, and he experiences a general uncomfortableness during the entire day.

The farmer starts hurriedly for the field, to find that he has left some important article at the house or barn; a fragment of time is lost in going for it, and with it a fragment of opportunity and of strength.

Permit me to refer more particularly, first, to fragments of time. How often do we hear people say, "I would have done this or that, but I did not have time;" "I would like to attend that meeting or that convention, but really I have not time;" just as though we were entitled to more time than is given to us, or that more is demanded of us than we can do in the time allotted to us. We each have all the time there is, and if we fail to do this or that, or to be here or there at any given time, it is because we are somewhere else by our own choice, or by circumstances beyond our control. If by our own choice, no one else is to be blamed : if from circumstances beyond our control, we are neither to be condemned nor censured.

Who of us cannot look back and call to mind many fragments of time that have been literally lost, or even worse than lost, because spent in a manner injurious to both body and soul. These cannot, like the fragments of the loaves and fishes, be gathered up, or, like earthly treasure, once lost, possibly be found again, for time once lost is lost forever, but the realization of the loss, and its ruinous results, may help us to guard carefully against similar experiences in the future. We must in some way be brought to realize things as they are in fact before we will seek a remedy. Some people are really dead so far as benefiting society or humanity is concerned, before they are conscious of it. They are like the Irishman, who having heard his mistress say she liked turtle soup, went and found a turtle, and as he supposed, killed it, and then brought it to her. All at once the turtle showed very decided signs of life. "Why," said she, "Pat, I thought you said it was dead." "In faith, ma'am, he is, but he is not conscious of it." The oft-repeated declaration that time is money, though not literally true, needs but little qualification to express a truth; in fact, it often represents more than a money value, for money cannot purchase the least fragment of it. The fragment of leisure time, which many have in the morning and evening, is greatly curtailed in the experience of the dairyman, for his work is especially early and late, but there are none so busy, but that many moments during nearly every day are lost because not producing beneficial results. I would not, like some, advise the young plowman to have a treatise on plowing before him, so that he could better understand the theory at the same time he was engaged in the practice, lest the combined effort, mental and physical, would result in an uneven and crooked furrow. To do good work of any kind, the mind must be upon the work, otherwise the workman becomes a machine.

A reverend gentlemen passing where a lad sat upon his plow-beam, while his team was resting, thinking that the boy ought to be improving his mind as well as resting his body, familiarly said, "My son, would it not be a good idea for you to have a book to read while your team is resting, and not lose so much valuable time?" The lad replied, in Yankee fashion, "I say, Elder, would it not be well for you, seeing time is so valuable, to take a dish of taters with you into the pulpit on Sunday morning, and pare them while the people are singing, then they will be all ready for dinner and that much time saved?" The ridiculousness of the one makes more apparent the inconsistency of the other. It is not an evidence of lost time when a fragment of it is spent in resting, or observing the proper rules and customs which prevail and govern well regulated society, nor because every leisure moment is not devoted to the perusal of some instructive book, but the postponement until to-morrow of that which should be done to-day, and the many unnecessary delays in prosecuting the work in hand with the excuse that it will not make much difference, often results in lost fragments of time, the value of which can only be estimated by the decreased value of the results. As an ounce of prevention is worth a pound of cure, so an hour's time in proper season will accomplish better results than twice that time after the proper season has passed. Some fragments of time are unprofitably spent in experimenting. Not that old methods are to be adhered to rigidly, when newer methods that have been thoroughly tested and found to be worthy can be adopted, but to insure safety, there are rails to be kept as well as ruts to

be avoided, in farming as in all enterprises, and the proving new methods by experimenting had better in general be left to the State University.

There are also fragments of material that are worth saving. In the early settlement of this country, when the barns were of logs or slabs, with straw roofs, and the corn cribs were of rails or poles, built cob-house fashion, without cover of any kind, and the enormous straw piles were consumed by fire, persons coming from the old country or from the New England States, would often say that an Illinois farmer wasted enough to support an ordinary family. With the improvements in buildings and the increased value of farm products, this wasted fragment of material has somewhat diminished in quantity, but yet it is much larger than it ought to be. The reason as given for gathering up the fragments, "that nothing be lost," indicates that the question as to whether it would pay financially, is not the only consideration, but that a habit of saving, even though the material saved is of little value, is the practical lesson to be learned. The habit formed in our childhood days in the New England home, not to put even a kernel of corn or an apple-core into the fire, because that would be an entire waste of what had a certain value, as food for the chickens or pigs, has had much to do with the prosperity of later years. The value of apparently insignificant articles amounts to much in the aggregate. The old Scotch proverb, "Mony a mickle makes a muckle," is not to be ignored.

A solicitor of charity calling at the house of one who was reputed for his generosity, was greatly surprised to hear the head of the family reprimanding the servant for having thrown the wick of an expired candle into the fire, instead of putting it into the soap grease, and concluded that his mission there would be in vain; but he was equally and more joyfully surprised when the gentleman responded liberally to his request for aid. Not understanding this seeming incongruity, he asked him how he could so liberally contribute to aid the needy, when he himself manifested so much grief at the loss of so trifling a matter as the remains of a candle wick. In reply the gentleman said, "It is just because I am saving of what is generally wasted, lost or misappropriated, that I am enabled to respond so freely and generously to such calls as this." The question is often asked, "Why does that man never get ahead? He always works hard, is apparently not extravagant, came here at an early day when land was cheap, but somehow he is always behind, never has any ready money, and his credit is much below par. Others who had no more capital to start with than he had are prosperous, have good farms, good buildings and something in surplus account." There must be a leak somewhere, and if we can find and stop it, he may be saved from financial ruin. First let us look into the house. The wife is busy and the children employed as their ages will permit. No extravagance in furniture or apparel is seen. The dinner is certainly inviting, with pastry and nicknacs, indicating that no one should accuse them of not living as well as their neighbors. After dinner we go with the father to feed the pigs while the boys are permitted to lose several fragments of time (if nothing else) in entertaining the hired girl, while she, not too hurriedly, clears the table and washes the dishes. In the swill barrel are not only fragments of bread, cake and pie, but whole slices if not whole loaves of bread, a little stale, perhaps, but just the thing for a certain variety of puddings, while the family, children and all, are humored with the very erroneous idea that hot bread and

fresh pastry only are fit to be eaten. It is no marvel that the pigs are in better health than the children, or that much material that should and might be added to the yearly revenue is lacking. Let us look for another fragment. The father goes with his family to the store for the purchase of a few necessary articles. The merchant is very bland. (No reflections intended.) It is his business to be agreeable as much as it is the farmer's to raise calves for the dairyman. His goods are remarkably cheap, because bought at a very opportune moment. They will certainly be higher soon. You had better buy your entire winter supply now. You say you have not the money for so large a purchase. "Never mind that, I will trust you," says the merchant, "until you can market your grain or until you get your dividend from the factory." This, however, may depend upon the par value of your credit. With these and many other flattering words, and because you can buy on time, you run up a bill far beyond your expectations or your real necessities, and then adding some item merely to gratify pride or to surprise the neighbors, you depart, having in reality counted upon your chickens prematurely and spent your money before you earned it, and when pay-day comes, as it surely will, whether grain is high or low, whether butter is up or down, whether the factory pays for your milk, or the proprietor concludes that he needs the money himself, your purchases are largely things of the past, and you feel, if compelled to pay, as though paying for a dead horse. If debts are allowed to accumulate, interest eats like a canker, discouragement follows, and just as sure as a little leak will sink a ship, so sure will the diversion of these fragments of material sink the farm or the home. Carelessness in the care of buildings, fences or farming tools, is another fragment of more or less value according to the amount invested in them. The lack of paint to protect from the weather, the swinging of the barn door, when it should be fastened, either shut or open, the opening of the gate just far enough for the wagon wheel to tear it loose, or leaving it open when it should be closed to protect the crops, the omission to replace a broken or fallen board, the leaving of tools, especially wagons, exposed to the sun and rain, all of these and many more are fragments of value worth saving. The loss of material involves the loss of credit, of ambition, of hope, of social standing, and sometimes of reason and life. From a dairyman's standpoint, I can say but little, having never made it a specialty. My first recollections of farming, as conducted by my father among the rocks and hills of Connecticut, remind me of the milking in the early morning, for his rule was to have the cows taken to the pasture before the sun shone upon them. But the half dozen cows, and the every-other-day cheese made by my mother's own hands, were in comparison to the dairyman's work of to-day something like the few acres in a New England farm to the many broad acres upon which the Illinois farmer spreads himself. The fragment of material lost by injudicious milking is greater than many imagine. In order to obtain the greatest amount of milk from the cow the milker must have perfect control of himself, of his own movements and of his temper, and never allow himself to be interrupted by the presence or talk of another. I suppose some would say of himself or herself, but according to my ideas of propriety it is no more woman's province to milk the cows than man's to make the bread or wash the dishes. Circumstances may for the time justify either. Nervousness on the part of the milker, abuse of the cow by words or acts, or interruption of the milking, will reduce

the flow of milk, and if continued prematurely dry up the cow. A change of milkers for the same cow is injurious, also irregularity as to the time of milking. Treat the cow kindly and gently at all times, give plenty of nutritious food and clear, fresh water, and if any fragments are lost it will not be her fault.

In regard to the care of the milk and the manufacture of butter and cheese, I leave that for those who are in the business, but I judge from what I learn in regard to the merit of the cheese produced from the skimmed milk in some of the factories, that there is not much fragment of value left for the pigs.

As the breeding and raising of stock is closely identified with dairying, I will refer to that briefly. Cattle were among the first created things, and were prominent in the property of the antediluvians. A fragment was preserved in the ark of Noah, the increase from which soon covered the hills of Chaldea and the fruitful valleys of the Jordan. The patriarchs were rich in cattle. In those early times the cattle breeders were not unskillful in management, when their personal interest was a part of the consideration. The breeding of a particular kind of color has perhaps not found a rival since Jacob's time, when to get even with his selfish father-in-law, whom he had served fourteen years to obtain the wife of his choice, and who he declared had changed his wages ten times, he resorted to such scheming as increased only the white and red streaked, which by contract were to be his share. While we would not commend his example, it indicates that the inventions of man are not confined to these later years, which may be called the cranky period, as evidenced by the Colorado gentleman who desired to improve his herd of cattle by obtaining a cross between the American goat and the Jersey, but was restrained when informed that while it might be an improvement upon the Jersey it would be ruinous to the goat. That great improvements have been made in the breeds of cattle, both as to milk producers and market value for beef, is evident. The Durham and Hereford for meat, the Devon for symmetry of form and purity of color, the Holstein, the Ayrshire and the Jersey for quantity and quality of milk, have added a material fragment to the value of the farm and dairy, estimated at about 35 per cent. of the total value of the cattle.

Another fragment, to which I will refer particularly, is the fragment of experience. In employing a salesman, or clerk, his experience is considered as giving value to his services. If a person is employed as a butter or cheese maker, his value to his employer depends largely upon his experience as such. So I would say to every farmer or dairyman, appropriate to your own personal benefit the fragments of experience possessed by your elders and superiors so far as they are available for you. Miss Experience is an expensive teacher, though many prefer to risk the expense and learn directly from her. The father who chews tobacco or smokes his pipe or cigar, remonstrates with his boy, who follows his example, saying by way of argument, that he has seen the folly of it. The manly son considers the point not well taken and the argument as worthless; he proposes to see the folly of it, too. Susan sees her mother absorbed in a book which she takes particular pains to keep secreted when not reading. If discovered, as it is sure to be if any mystery is connected with it, the dear mother informs her darling that it is not a suitable book for her to read. Susan prefers to be her own judge in the matter, and spends the midnight hours in poisoning her mind and ruining her soul with the vile,

trashy novel, which so delighted the mother. Without commenting upon the guilt of these parents, the conduct of the children is repeated by every person who will not accept and profit by valuable fragments of experience, which have been obtained by years of toil and study and which is proffered to them freely. Then besides these fragments of experience from others, there are experiences in our own lives, which if remembered and improved, have great value in directing our future plans and actions. The saving of these fragments of time, material and experience, will greatly increase our wealth of ability to succeed in whatever branch of business we pursue.

I have said nothing of the fragments of time, of money, of character and everything else valuable. lost, yea, worse than lost, by those who habitually visit and patronize the saloons, for I could not if I attempted portray the evils resulting from such habits, and I would hope that none in this intelligent and cultivated assembly would ever darken the doors of those who engage in this nefarious business, though prosecuted under cover of license, for by so doing not only valuable fragments of time, material and character are lost, but ruin of body and soul are the legitimate fruits thereof.

And now, my dear friends, members of the State Dairymen's Association, of this noble and historic State of Illinois, this State of which her citizens may well be proud, I thank you for your kind attention and consideration, and in conclusion permit me to congratulate you, in what has been accomplished during these eleven years of your existence as an associated body, in educating the dairyman and the stock raiser, as well as the general farmer, so that his condition may be improved financially, morally, socially and religiously, for that, I understand, is the aim of your association. Before the late civil war, when the question of our national existence was the issue, and its perpetuity was maintained at the cost of thousands of valuable lives and millions of precious treasure, Cotton had been proclaimed king of this republic. When the labor that produced and sustained that king upon the throne was declared free, and the voluntary soldier was permitted to return to his accustomed labor, Corn obtained the power and swayed the kingly sceptre. During these years of unusual storms, with late and early frosts, this monarch trembled while Hog became the aspirant, and the contest continues unsettled, while disease cripples the aspirant, and Hog and Hominy are being discounted. From the signs of the times, as seen from the tree of observation, considering the progress being made in sympathy with the dairymen's associations throughout our united land, it can be said of all these monarchs, "Thy days are numbered." Mrs. Bovine, with a family backing of 45,000,000, valued at \$1,200,000,000, is on the track, not like King Alfonso's widow, to be a regent, but in queenly dignity to sit upon the throne in regal splendor and wear the crown, without a rival, and whether a Durham, Devon, Hereford, Holstein, Ayrshire, fawn-like Jersey or a humble native, long live the Queen, COW.

DISCUSSION.

MR. LESPINASSE: There is one point made in Mr. Avery's paper that might carry with it an erroneous idea, namely, that part which refers to the small fragments left to the pig in feeding skim milk. There are many practical men, many farmers who do not believe that after the cream is all taken out of

the milk that there is nothing left in it, and I wish to show to you, gentlemen, that there is more left for feeding purposes than a great many of you have any idea of. There is a good deal of caseine left in the milk, which is essential to the growth of the animal. Those substances that are left occur in the formation of flesh and muscle. The salts are also left in, which are valuable; chloride of sodium and phosphate of lime, which help in the formation of bone; and the sooner you get out of your head the idea that skim milk is without value in its feeding qualities, the better it will be for you.

Its value has been estimated by experts who have made a study of the matter, and they can corroborate my statement that skim milk is worth, the year around, twenty-five cents per hundred pounds, and that one hundred pounds of skim milk will put six and a half pounds of flesh on the back of the pig.

MR. JOHNSON: I have heard it said that the proof of the pudding is in the eating. The proof of the skim milk is in the feeding. It is a very easy matter for chemists to sit down and figure out just the value of skim milk, but those that try to sell it say that you cannot persuade the farmers, who are the judges of it to any great extent, that it is of any great value.

MR. BUELL: Some gentlemen present undoubtedly have seen the reports of the result of feeding skim milk at the experimental station of the State of Wisconsin, in which experiment the value of skim milk was proved to be thirty-five cents a hundred. The experiment was carried on in this way: by keeping account of everything which was fed to certain calves, and reckoning the value at market rate. If I remember right, the hay was reckoned at \$8.00 a ton, the corn and oats I think at \$15.00 a ton, and the calves were reckoned at four cents a pound, and at the end of a certain time, after deducting the value of the food given to the calves from the value of the calves, reckoned at four cents a pound, it left the value of the skim milk at thirty-five cents a hundred.

Now, the point I wish to call attention to is this: Undoubtedly this trial was a fair trial, and showed fairly what skim milk was worth, feeding it in the manner in which it was fed, but the feeding was done, undoubtedly, under the most favorable circumstances to the animals. They were kept quiet, and they did not worry off the flesh by fighting or anything of that kind. Many of us make mistakes in our farming operations by not studying circumstances and conditions. We must do that. We must feed this feed under circumstances favorable to the best results. Now, when you take a farmer and ask him what the value of skim milk is, I want to know how he feeds it, whether he feeds it intelligently, or in such a way that no sensible man would expect that it would produce the best results.

MR. AVERY: I think that what I said has been misunderstood. What I did say was, that after cheese had been made from the skim milk, the fragment that remained for the pig was very small.

THE CHAIRMAN: We have with us, from Wisconsin, Professor Henry, who has charge of the experimental farm at Madison, and I think he could give us some points on this subject.

PROF. W. A. HENRY: *Ladies and Gentlemen*: This is the second time I have had the pleasure of being with the Illinois dairymen, and I anticipate a

most pleasant meeting here. I have been working among the farmers of Wisconsin for six winters, and I am surprised and glad to see so large an audience here to-night.

I was delighted with the accuracy with which my friend Buell gave the experiments that I had made, and I only wish that there were more farmers that could give accurate figures on such matters. I wish to emphasize the point that he made, that there should be care taken in feeding, that the animal should be in a condition to secure the best results.

From the experiments that we have made at the experimental station, we are convinced that, nineteen times out of twenty, it pays to feed skim milk.

In order to try our experiments fairly, I went out into Jefferson County, and got a butcher to buy calves from cheese cows. That is right in this district where cattle have been bred promiscuously, as they generally are. For calves from thirty-six hours to a week old we have to pay from \$1.00 to \$2.00. The figures given by Mr. Buell are correct; perhaps I can add a little.

It is only when you are feeding to the maximum of good feeding, that you will make skim milk worth anything like 35 cents a hundred. Mr. Gurler's statement is right. Skim milk is worth half as much a hundred pounds as good corn is worth a bushel. When I say good feeding, I don't mean pouring all the cold sour milk down a calf that you can get it to drink. The calves have gained about two pounds a day with us during the summer, and never had over fifteen pounds of skim milk, but it was fed at blood heat three times a day, always warm. Not over fifteen pounds per calf, and the milk was always carefully weighed. Right with that milk we put other food, all the calf can eat. For instance, we put whole oats, and if he gets tired of that, we mix some corn meal, and then we mix some bran. The milk we used was skimmed with the Cooley creamer.

Question. On a basis of 35 cents that would make about 5 cents a day?

Answer. Yes, sir.

Question. And with the other feed how much did you have left?

Answer. Nothing left, sir. We are counting that, that is, what the calf paid for the skim milk. We paid 1 cent a pound for oats and grain, \$8.00 a ton for hay, and then had 35 cents for the skim milk.

Question. Have you experimented at all with feeding sour skim milk?

Answer. We have not got down to feeding sour skim milk yet. I want to prove one thing before I go to another. I have got so now that I think we can feed calves on sweet skim milk successfully. I want to emphasize the point of feeding the milk warm. In feeding skim milk usually the errors come in two ways—feeding too much at a time, and too much together. Now, a man will let a calf have a whole pail of skim milk because it is skim milk. It is better to feed three times a day, and a small quantity each time, and the thermometer should certainly be used until you can tell that it is nicely blood heat, and with those two points, and then feeding liberally with the other food, I think you can make skim milk worth from 20 to 30 cents, and in maximum cases 35 cents.

Question. How much danger is there of over-heating the milk for the calves?

Answer. I do not think there is much. If it should run up to 120, I should not be alarmed. I would rather have it 120 than 60 or 70. There are

many ways of feeding calves, of course. I have only talked about the skim milk part of it. Now, the use of oil meal, and the cooking of oats, all those sort of things can be studied out, and the value of them reached. We keep our calves up. We do not let a poor weak little thing stand out and fight the frost and expect good results.

Question. Have you made any experiments as to the value of grass as pasture for calves, as compared with hay for your calves? My own experience is, that better calves are made on hay than on grass.

Answer. I don't know. I cannot give anything definite. I cannot see any advantage in giving calves grass in the summer, but I cannot give anything definite. I am paid for giving something definite, and so I do not want to talk about it. We have lost some calves that ran out and drank milk and all that.

THE CHAIRMAN: I want to have Professor Henry tell us about some experiments he was making last Summer when I was up there, to show the comparative value of corn and middlings, and the combination of corn and middlings in feeding some shoats.

Answer. I am sorry to say I cannot give the figures, only the conclusion of my experiments in feeding a number of lots of pigs was that our farmers do not appreciate the value of shorts. I mean now, the new process Minneapolis shorts, as quoted, new process milling shorts.

THE CHAIRMAN: I read the figures given by the Missouri Agricultural experimental station, and I remember that they claimed that they produced more pork from a ton of wheat shorts, from middlings, than they did from a ton of corn meal. I believe we do not realize the feeding value of this food. It differs from bran. It is just about half way between the old style of fine middlings and the bran. It is coarse middlings or shorts. It is the next grade to bran.

Music—Belvidere Quartette.

Convention adjourned to meet at 9 o'clock next morning.

Convention met pursuant to adjournment at 9 o'clock, December 10, 1885.

APPOINTMENT OF COMMITTEES.

ON RESOLUTIONS.—C. F. Dexter, O. S. Cohoon and H. W. Avery.

ON NOMINATIONS.—R. Lespinasse, W. R. Hostetter, D. C. Woolverton.

ON DAIRY IMPLEMENTS.—Lovejoy Johnson, E. L. Lawrence, E. E. Chester.

TO ATTEND MEETING OF STATE BOARD OF AGRICULTURE.—C. C. Buell, Lovejoy Johnson and H. B. Gurler.

TO FORMULATE SENTIMENTS OF CONVENTION.—C. C. Buell, W. H. Hintze and L. M. Potter.

TO CONFER WITH UNITED STATES COMMISSIONER OF AGRICULTURE IN REGARD TO FOREIGN BUTTER MARKETS.—R. P. McGlinchy, E. E. Chester and John Boyd.

HAS THE BOTTOM DROPPED OUT OF THE DAIRY BUSINESS?

BY LOVEJOY JOHNSON, STILLMAN VALLEY, ILL.

Your Directors in making appointments have usually shown rare sagacity, but in this case there is a strong suspicion that a majority of the Board, being managers or owners of creameries, are looking for some recipe to modify and

quiet their exasperated patrons who have ventured to *remonstrate*, and in some rare instances have dared to *complain* of a 50-cent June or an 80-cent August dividend. They have learned by experience that it is a very simple thing to sit down and *figure out the profits* in the dairy business, but quite another and much more difficult matter to persuade the man who milks the cows and delivers the milk that it pays. Many a time have I during the last year of depression been called upon to present the *bright side of the business*, and with apparent success, but more than once has my listener gone away grumbling that the "bottom had dropped out of the dairy business."

Is then the outlook for dairying *really discouraging*? *We think not.* While there is certainly a depression in dairy products, I can see many reasons why the *intelligent, progressive* dairyman should take courage. A good maxim in business is, never give up one line of business till you are sure of a better. Let us briefly consider some of the causes of this depression. Were I to undertake to give them all, you would tire of listening.

First, butter and cheese are lower in the market because other commodities are. It is a law of trade which has few exceptions that one commodity in its rise or fall sympathizes with another. Corn is low, barely above the cost of production; oats are low, potatoes are low, cattle are low, and who that has fed 40-cent corn to 3-cent hogs has not become disgusted with hog-raising? That shoats are only worth half the usual price seems to point to the fact that the bottom has dropped out of the *hog business*. But what thrifty farmer will think of changing from hog-raising to wheat-growing now? He will rather add to his herd, believing that there will be a reaction and he will reap the benefit.

Why not, then, apply the same course of reasoning to the dairy business? A fair and honest comparison of the prices of dairy products the last year with the prices of other farm products will show that the dullness is about the same in everything. The fact of general dullness in business is universally accepted. The land is full of political economists ready each with a cause for it and with remedies as various. There are cranks to-day who ascribe it to change of administration, while others are just as sure that the change should have been made sooner. Certain wiseacres say it is all because our revenue laws are out of joint; others that the management of our national treasury is all wrong, while others say it is due to the reckless *extravagance* of the American people. But oh, says the frightened croaker, it is butterine. The manufacture of bogus butter and cheese is so simple that it can be made so good and so cheap as to defy competition by the honest dairyman; that in the race the honest cow cannot compete with the dishonest hog, the cotton plant and glycerine. What creamery man does not become familiar with these dread forebodings? Let us look at this matter *fairly*.

As to the *morality* of the manufacture of bogus butter I have no controversy. There is no law of God, nor should there be of man, to prevent the manufacture of any article of wholesome food if it is made and sold for what it is. But thus far our law-makers have made poor progress in framing laws to compel the *branding* of the goods. It is proposed by some of our wise heads to *tax* it out of existence by a *national enactment*. This, to my mind, however devoutly I might wish and hope for it, seems entirely impracticable as long as three-fourths and more of our representatives in both houses of Congress are from districts of

consumers rather than producers. The average Congressman will work for his constituents. His first instinct will be to favor a law which cheapens the cost of living of those he represents. This is natural. Looking at it from his standpoint he will fail to see the iniquity of counterfeiting butter as plainly as we who depend upon dairying for our *bread and butter*. We shall look in vain for relief by Congress. While I am opposed to the whole business, I can see no direct way of getting relief from it. Granting, then, that it has come to *stay*, it is not so big a bugbear as many suppose. It can only take the place of *dairy grease*, which should have been banished from earth long since. They cannot compete with fine creamery. There has been no time within my memory when fine grades of creamery did not command a good price—18 to 20 cents in June to 32 cents in December is not bad. But, says the already frightened dairyman, if we are to depend alone upon those who have a taste for and can afford to use *fine goods* there will soon be a surplus. This is true perhaps with the necessities of life, but not with the luxuries. As proof of this I have but to refer you to your own experience. It requires a much larger quantity of good butter in your own homes than bad.

With certain limitations, which this generation will not reach, the law holds true. As you improve the *quality* you increase the demand. Ask any *pater familias* or caterer, and his testimony will invariably go to prove this rule. Only a short time ago a railroad man charged me with beating him out of \$25 a year by selling his wife a small crock of creamery. Now, he says, she has got to have just that brand of butter and double the quantity; and this is not an exception.

From statistics we learn that but 18 pounds of butter are consumed annually by each individual in the United States. Now, is there any doubt but that if double this amount of nice, sweet butter were placed within reach it would be gladly secured and consumed? Is it the part of wisdom, then, to waste our breath in bombastic Philippics against the manufacturers of butterine and then sit down and fold our hands or murder our representatives because they do not make laws to suit us? As I look at it, we should invoke the aid of science and experience, and make goods *so fine* as to *defy imitation* and *competition* from counterfeiters.

Let us as dairymen, then, come up to the mark of our high *calling*. Let us bring to this business some of the wisdom and culture that is wasted in our learned professions. I may be lacking in reverence, but I believe that it requires as much brain and push to make a royal butter and cheese man as a lawyer or doctor, and certainly it requires more wisdom and *grace* to run a dairy and take honest milk to the factory than to manage an average church and society.

We know, then, what is demanded. Let us *make it*. *How* shall we do it? I hear you say. As our farms are arranged in this section there is no doubt but that the *factory* plan is the most feasible one. I am not here to say whether the whole milk plan or the gathered cream plan is best—I use both—nor to discuss the comparative merits between creamery and dairy butter. My mother made beautiful dairy butter and, like everybody else's mother, always got 2 cents a pound more than anybody else. I have a great respect for dairy butter. I do not hope to tell you much that is new, but to emphasize the oft-repeated tale you have heard from our revered friend, Dr. Tefft, and others at these conven-

tions, and you dairy farmers who have read it from the printed instructions given by the man who has put his money into your factory and is working for your interests (next to his own). Now do not understand me as holding up the average creamery man as a saint or as being possessed of more honesty to the square inch or more love for mankind than the average mortal. Belonging to that class, I have special means of knowing, and I have never yet discovered one who I believed conducted his business as a missionary, but possessing a fair amount of business intelligence we believe that we can help ourselves by helping you. I shall not weary you with figures to persuade you that *my* pet plan is best.

We should keep this fact before us constantly : "Fine Dairying is a Fine Art." To make fine butter or cheese we must have fine milk, and to make fine milk we must have the right kind of feed and the best of cows. If you raise your cows as every farmer should do, no matter what breed you fancy, select the best milking strains. I am not sure that the Jersey or Holstein are absolutely essential to success. I believe and I am sure many of you will agree with me that if we look after the best *milking* strains among our natives, or Short-horns even, we can get something for the general purpose cow that will eclipse the coarse Holstein or the *steakless* Jersey. When you get this good cow, *take care* of her. Just here is where more *failures* occur than *anywhere* else. It is not natural for the average Western man to milk or care for *cows*. He prefers a horse, and too often the cow barn is under the care of shiftless help, whose chief end in life seems to be to have an easy time and get through the *chores* as soon as possible. She should have an *abundance* of nutritious *milk-producing* food. Keep her warm, clean and comfortable. A cow will appreciate and respond to kind treatment as quick as a horse. Don't look after cheap help. Never allow a man to swear at a cow ; nothing will spoil her disposition quicker. Secure men who can keep their temper, and who have enough sense of the fitness of things to keep their persons clean and neat when near the cow or milk. Were I to hold up a photograph of some of the milkmaids in our dairy districts you would say, "Give me butterine, oleomargarine, suine or any other 'ine' if it *is* made of cotton-seed oil and glycerine."

Having secured your milk in the way suggested, let the first treatment be in the way of *cooling* it. Mrs. Beecher, in her recipe for cooking steak, says, "*Turn it, turn it.*" I would say of milk, "*Cool it, cool it.*" If you deliver it to the factory this is absolutely essential every month in the year. More *poor butter and cheese* can be traced to this failure than to any other. Clean, cool spring or well water is best for this purpose. If you have neither, use ice, but cool it. Remember, too, that milk while cooling is wonderfully sensitive to odors that are floating around. I was inclined to think before I looked into the matter that a butter-maker in my employ exaggerated a little when he said that he could tell what a certain family had for breakfast, dinner and supper by the different odors he found in the cream. After cooling do not try to "monkey" with your conscience by persuading yourself that it is right to steal even a *little cream* from the can for company coffee. Having delivered your milk or cream in the manner indicated, the responsibility is with the butter or cheese-maker. Hold him to it. Stand by him in his attempts to correct abuses. You have a right to know *how much* he is getting for your goods ; but never ask him *where* he finds a mar-

ket. You will not keep it to yourself, and many a good market has been given away to some less enterprising competitor.

Do not ask the Legislature to pass a law like the "Wood bill" especially for us. We may not be better than other men, but we are no worse. It may seem paradoxical, but it is true. There can be too many factories in a given territory. No creamery man will enforce necessary rules about the can of milk or cream among his patrons as long as his competitor holds out a standing invitation to him to change. The utmost confidence should exist between manufacturer and patron; both working for the same end, one cannot succeed without the aid of the other.

What I have said about butter applies with equal force to cheese. Only a few years ago the Elgin factories began to skim. An effort was made to see who could get the most butter. Until with the aid of the separators the skims are absolutely dangerous for food and are a drug in the market. While the production has increased but little, the demand has fallen off beyond all expectation, and the cheese market for a year has been flat. People have lost confidence in cheese. The remedy, then, is to aim high, even at *perfection*, in butter and cheese-making. Make your goods of so high a grade that they *cannot* be counterfeited. I hope to live to see the day when, throughout this grandest dairy belt in the world, instead of *straw* stacks, fenced with worthless hatracks—mere imitations of the bovine race—comfortable barns, flanked with herds of gentle, trusting, loving specimens of our native milkers, will abound.

DISCUSSION.

MR. DEXTER: What is the lowest price of what you call good butter that you have known?

Answer. I think the lowest price I ever sold butter at was 14½ cents; that was one week several years ago, in 1879.

Question. I mean the average production of the season?

Answer. I can not tell you. I should say somewhere between 25 and 28 cents.

MR. DEXTER: I have some figures here, which I will read: "Professor William Brown, of the Ontario Agricultural College, has been carrying on experiments for determining the food cost of milk, butter and cheese, both in summer and in winter, and he finds that with the common Ontario and Short-horn grade cows, yielding 3,500 pounds of milk a year, the food cost in summer is 3 cents per gallon. This allows for three acres of ordinary cultivated hay pasture, the grass upon which is worth to the farmer \$10.00 per season of six months. With a better pasture capable of keeping two cows upon three acres, the food cost of the milk may be reduced to 2 cents per gallon. In winter, with a daily allowance of 12 pounds of hay, 30 pounds of turnips or mangolds, 3 pounds of bran and 2 pounds of crushed oats, costing in the market 15 cents, but, to the farmer who grows it, not over 8 cents, the cost of milk with cows giving 25 pounds per day will be only 4½ cents per gallon. On this basis for the cost of the milk, a pound of butter in winter will cost for food consumed, 7¼ cents, and in summer, with ordinary pasture, 5 cents; but, with the best of pasture, 2 cents per pound. The cost of cheese in summer from milk made by cows feeding in ordinary pasture is placed at 2 cents per pound."

Now, the question as to whether the bottom has fallen out of the dairy business reminds me of a remark made by one of the oldest settlers in Wisconsin, who has had a great deal of very fine butter sold at from 25 to 50 cents a pound. In conversation with him he told me that when he first came from the East and settled in Wisconsin as a dairy farmer, he thought if he got 6 cents for cheese and 12 cents for butter, he was doing a very good farmer's business. Now, with these figures before us, why must the question arise as to whether the dairy business is necessarily imperiled? If these figures are right, why is it that if we are forced to sell creamery butter in the summer at below 20 cents, it seems that the entire dairy interest must perish? Now, suppose we have to sell butter for 15 cents, what would become of the country? If we believe the creamery men, it is going to ruin.

MR. JOHNSON: I am not in the habit of dealing in figures in that way. You can sit down and figure out most anything. But when you go to get at the cost of making the milk it is a very hard matter to come at, the conditions are so varied. But I have experimented enough to know that if I were guaranteed 20 cents a pound the year around for my butter that I could make money out of it, and the reason why dairymen think that the bottom has fallen out is that the price has been so high that it is hard for them to come down. I know that butter can be made and sold with a profit at 20 cents the year round.

MR. HOSTETTER: There is considerable cost besides the food as these figures give it. There is the milking of the cow, the cost of the cow, and of delivering the milk at the factory. Mr. Johnson can probably tell us how much it costs to make up a pound of butter?

Answer. I get all I can. The price with us is 4 cents a pound for butter and 2 cents for cheese, and I furnish everything, deliver the goods at the depot, take all the risks of loss in selling and everything.

MR. DEXTER: I was well aware that there were additions to be made to this. The maximum price here is $7\frac{1}{4}$ cents, 4 cents more on that for making would be 11 cents. Add interest and the carriage of the milk and everything, and it would not raise the cost above 14 to 16 cents.

MR. BUELL: I always feel suspicious of such distinctions as Prof. Brown has made there, where he speaks of the cost of feed being so much to the farmer and so much in the market. Now, the cost of feed to the farmer is what it is worth to him practically. It is a little bit like the farmer not counting his work in the winter because his time isn't worth anything. Now, the farmer who figures that way will make a great mistake. If he cannot fix it so his labor is worth something, his capital and strength are not employed to the best advantage.

MR. HOSTETTER: Another great item is the value of land. The cost of the cow on land at \$100.00 an acre is a good deal more than if it were \$10.00 an acre. Land around our country is worth from \$75.00 to \$100.00 an acre, and would make considerable difference.

MR. LAWRENCE: Another item. The cow goes dry from one to three months. These figures are supposed to have been made when the cow was fresh. While they say figures don't lie, they may deceive us fearfully.

MR. DEXTER: What I want to get at is whether we can afford to make butter at lower prices. We can all remember when we could buy a fair quality of

butter for 15 to 18 cents. I can remember when my father thought our family was going to ruin when he had to pay 25 cents a pound for butter.

MR. BUELL: I think that dairying to-day is the best business, and that men are very foolish in leaving it just at this juncture.

MR. JOHNSON: The trouble has been that for a few years past butter has ruled enormously high, too high. The dairyman's ideas have got way up, and he can't come down gracefully. He will sell his cows now, but he will come back to it after a while. The question is whether there is more money than anything else for us here in dairying. There is certainly no money in raising and fattening cattle on our \$75.00 land to compete with the men that raise cattle on land that doesn't cost them a cent, especially in Indian Territory.

THE CHAIRMAN: I wish we could get at the actual cost of producing milk. Prof. Henry, can you tell us?

PROF. HENRY: I do not believe I can produce milk for less than 60 cents a hundred in winter. That is, going out and buying corn meal for a cent a pound, bran at \$12.00 a ton, and hay at \$8.00 a ton, and saying nothing about the labor or the capital invested, I do not think it can be done for less than 60 cents a hundred. Certainly this feed should go in at market value.

MR. BOYD: It seems to me you are going on a false hypothesis all the way through, because one pound of milk from one cow is not the same as a pound of milk from another cow. If I could produce a hundred pounds of milk for 60 cents in winter, I could make money very fast.

Question by the Chairman. Do you not think it costs a little more to produce Jersey milk per hundred pounds than it does of other cows?

MR. BOYD: No, sir; it costs less. They eat less in proportion than another cow. You have to find out about each cow, how much it costs to keep her, and how much she will produce for you.

THE CHAIRMAN: In other words, which is the best machine to manufacture your raw material?

PROF. HENRY: I made milk from the 15th of May to the 15th of June this summer by keeping the cows up and feeding ensilage and corn, and my butter cost 11 cents and a fraction—call it 12 cents a pound—allowing \$3.00 a ton for the ensilage and taking no account of the skim milk.

THE CHAIRMAN: Now, putting the skim milk at 20 cents a hundred, how much would that reduce the cost of the butter?

Answer. Well, our cows all took about twenty-five pounds of milk for each pound of butter. There would be about 6 cents for the skim milk left for each pound of butter. The ensilage was used which we took from the second crop of clover. We ran the mower through the field, and went along and picked it up and threw it into the silo and covered it up. I count such feed as worth \$3.00 a ton.

MR. STOCKWELL: What do you consider the work worth for taking care of this stock and making the butter?

PROF. HENRY: I do not like to be pinned down to that. I am giving a man \$20.00 and letting him take care of twenty cows, and you might get a cheaper man, and he take care of more cows. I give you the figures as I have them. Now, what you could make a pound of butter for will depend upon factors that I cannot give. Hiram Smith says it takes one man to attend to ten cows, and

that covers the help in the house, and when he has sixty cows he has six hired help about his farm. I think that might be considered very fair.

THE CHAIRMAN: Can you not figure that down for us? If a man takes care of the cows and does all of the work, how much butter will that produce?

PROF. HENRY: You can do that better than I can.

MR. JOHNSON: If there is anything that recommends that institution in Wisconsin for me, it is that Professor Henry comes here without figures. I'm afraid of the man that figures too much.

MR. BUELL: It seems to me that it is not fair for us farmers to ask Professor Henry, who is engaged in experiments of a scientific character like this, to go any further than he has gone. It is for us to figure how much it will cost to raise and manage forty or eighty cows, and it is for him to give us just such figures as he has given, as the result of his scientific experimental work. We should make the applications ourselves. I wish that there were men—more men among us farmers, who could tell us just what it costs to manage a dairy of forty cows. I do not believe it requires one man for every ten cows, but then, I do not know that I am getting the best results. Right there is a question, how much work it pays to put on a cow? Possibly Mr. Hiram Smith is carding his cows—taking better care of them than I do, but possibly he is not making as much margin.

MR. ALLEN: My experience is about like this, that if a man is going to produce a pound of butter for fifteen cents, he has got to have his boys and his wife and his children around him to work for nothing. When I first began in the dairy business I had my boys and my family around me, and we got 15, 16 and 17 cents, and we thought we did pretty well, but the boys have grown up and gone away and I now have to have all my work done. I make what some people call first-class butter, and I get a big price. I have a herd of some thirty-five Jersey cows, but I have to hire all my help and it makes it so expensive that I am sure a man cannot make a pound of first-class butter, and get a profit on it, unless he gets at least 25 cents. You can not feed a cow nothing but hay, and make first-class butter, and that makes it expensive.

MR. JOHNSON: I will venture this assertion, that if any of your neighbors want to borrow money, they don't come into Belvidere to borrow it.

MR. ALLEN: I assure you they would not get any money of me that I have made this last year. I do not believe that a man can run over ten cows to a man, but then there is a great deal of difference, I find, in the way different men handle labor on a farm—some can get more labor out of hands than others.

MR. JOHNSON: I think there is a fallacy in the way dairy farmers reason. They will hire a man for \$25 a month, and set him to work about two and a half or three hours a day, and have him do something else the rest of the time, and charge the whole time up to the dairy, and then conclude that they cannot make butter for less than 25 cents.

MR. HOSTETTER: I have kept account ever since I have been farming, of everything that I spent and everything that came in, and I cannot make as much money at any business as I can at farming. You keep an account of everything—everything you use in the house, fuel, etc., etc., and a farm that is not bringing in \$1,000 a year for living for a man, isn't doing very well—a farm of 160 acres. I want to ask some of these gentlemen what they think

about the length of time that a cow should stand dry before she comes in. My experience is that it should be about six or eight weeks and I know that I have injured several cows by milking them up to four weeks of calving.

MR. JOHNSON: That depends on circumstances. The way some cows are kept in this country, they ought to run dry six months in order to get flesh on.

MR. BOYD: I think that a cow that is a persistent milker ought to go dry four or six weeks at least. If they do not they lose more after the next calf is dropped than if you stopped milking them. It depends more upon the cow than upon what she is fed. I have got a cow that you can not dry up.

MR. ALLEN: I find that many of my Jersey cows hold out very well to milk. Some times they will not dry up all, but I do not think it is a good plan to allow the cows to run up to near the time of coming in. The calf is feeble, and if you raise the heifer calves they are weak. They do not do as well as if the cow has more time.

MR. STOCKWELL: My experience is that you will get just as much milk from a cow in nine months, as if you milked them longer, for resting three months will make up for the extra time of milking.

MR. JOHNSON: I think another element in this is the milker. I milk all the time from sixty to eighty cows, and I never yet had a cow that one of my men could not dry up.

MR. LINCOLN: It is my experience that if we take a heifer and commence by milking her as long as we can, she will be more persistent than if she dried up pretty quick. If she is dried up quick at first, she will always be inclined to dry up about the same.

MR. REED: I am not much of a dairyman. We raise all kinds of stock on our farm, in connection with the dairy work. But I think we usually milk our cows up to about six weeks of calving. It is better for the cow one year following another. Professor Henry was speaking of producing milk at 60 cents a hundred in the winter. Now, I do not believe that it is possible to produce milk on our land here at 60 cents a hundred, when we take into consideration the value of the land and everything. I would like to have Prof. Henry give us the figures on which he based that statement.

PROF. HENRY: I absolutely refuse, Mr. President, to do anything of the kind. It would be a libel on the general intelligence of this audience for me to get up here and attempt to figure that out. I am in the presence of a hundred farmers, and they can figure better than I, and they ought to figure. I had the pleasure of visiting a Wisconsin gardener, Mr. J. M. Smith, of Green Bay, who has a farm of forty-five acres, all laid out with fruit and vegetables. By the way, he carried his first vegetables to market in a market basket, and went in debt for his first horse and wagon. While I was visiting him I asked how many radishes he sold, and he would pick up his book and tell me, for instance, how many radishes he sold on the 12th day of May, 1877; and so with his cabbages, and everything else. He kept account of his garden and he knows exactly where he stands, and he is not only raising a garden, but he is raising a family of seven boys. He is doing splendidly all around. This is the twelfth convention of the Illinois Dairymen, and I hope that twelve more conventions will not come around until you can talk a little more intelligently about your farms.

MR. BOYD: Probably there is no man who can talk on that subject as well as the president of this Association.

THE PRESIDENT: Long years ago, when I first commenced dairying, I one summer kept account of the food cost for a pound of butter, with my cows on pasture—in June, I think it was. I figured the pasture at so much a week, whatever I could hire the cows' pasture for, and it cost me 9 cents and a fraction over per pound on the butter. That was at the time they were changing from summer to winter dairying, and some of my cows were really farrow cows. The following winter it cost me 18 cents and a fraction per pound of butter for feed, but that was not a fair comparison. Now, here are some figures for one year: From June 1879 to June 1880 my cows produced 266 pounds, per cow, of butter. The amount of skim milk I have figured here at 5,250 pounds per cow, that I think included the butter-milk—all except the butter that was taken out of the milk. That would make me 5,500 pounds of milk per cow. A great many of these were grade Jerseys. It was a large yield of milk. The average price of the butter for the year was 26½ cents. Total income from the cows \$83.61 per head. The cost of keeping was \$37.50 per head; that left me a net income, that is, an income above the cost of feed, at the market price, of \$46.11 for each cow. It did not include the labor—the labor was not reckoned at all. I know of one instance where a man got \$76.25 net from his cows, for the year 1884, but that was an exceptional case. I think fifty to fifty-five would be high enough for the average.

ADULTERATION OF FOOD AND ITS EFFECTS UPON THE HUMAN RACE.

BY DR. JOSEPH TEFFT, ELGIN, ILL.

Mr. President, and Ladies and Gentlemen of the Illinois Dairymen's Association. By your permission I will give you a few hasty thoughts penned for this occasion.

My time has been too much occupied with other matters to give the attention to any subject which I might wish to lay before this Association, and especially so with the one to which I am about to invite your attention for a few moments.

I allude to the adulteration of our food and medicine. Something over fifty years ago when the writer first entered the medical profession, the adulteration of medicine to any alarming extent was not known. Yet there was more or less of it going on. Quack medicines were just beginning to raise their hydra heads.

In those days such a thing as the adulteration of food was rarely heard of. Rye and Indian bread with Johnny cake made of Adam's ale and corn meal, and baked on a board before the large fire-place, together with pork and beans, bean porridge, with other etcetera, and finally winding up with ginger bread made by mixing flour and some other ingredients with unadulterated New Orleans molasses, furnished much of the wholesome food to raise healthy babies, buxom lasses, and a generation of healthy people. But how is it to-day? Can you mention any medicine which is not already adulterated or just on the point of being so? How is it with human food? A gentleman said

to me not long ago he had just two articles of food which he dared to eat; one was potatoes, the other was eggs. But when he came to learn that chemists were now soliloquizing about the manufacture of eggs he stood abashed for a moment, when a sudden thought lighted up his countenance and he remarked that it was a happy thing for him that he was almost through with this world of adulterations. Think you of flour, the basis of bread, the staff of life, as it is frequently called, being or having been adulterated with alum, carbonate of soda, hydrated sulphate of lime, silicate of alumina, bone dust, terra alba and chalk.

What shall we say of sugar? Dr. Letheby informs us England and America consume annually 41-4 pounds of sugar per capita. We being the largest sugar-consuming nation on the face of the globe, it becomes us to look well to its purity.

Sugars are divided by chemists into a number of kinds or classes. But for our purpose we will only make mention of two. (1) Sucrose, including cane, beet and maple sugars, which are identical and contain the same amount of sweetening powers. (2) Glucose, known sometimes as grape or starch sugar. This glucose sugar is largely manufactured in this country by boiling starch or amylaceous substances in diluted sulphuric acid, and using lime or marble dust (which is lime) to neutralize the acid, but if completely neutralized it loses much of its sweetness and becomes bitter, consequently the sugar usually contains acid.

This glucose sugar may be, and frequently is, largely used to adulterate sucrose sugar and its syrups.

So also is starch, gum, dextrine, marble dust, chalk, sand, bone dust, common salt, muriate of tin and prussiate of iron, or a blue made from the horns, hoofs, hair, etc., of animals, cooked together to be used in the finer grades of sugar for the toothsome epicure.

Sucrate of lime is sometimes found in small quantities in maple sugar from the elements of plant food contained in the sap. Sugar will combine with lime, oxide of lead, oxide iron, etc. It will also associate with itself sulphuric acid and comport itself very differently from that acid. This sucro-sulphuric acid is capable of forming a large class of salts which are soluble in a solution of sugar. Glucose has the same power of forming compounds as the sucrose, receiving the names of glucosates and gluco-sulphates. On analyses of several samples of glucose syrup an excess of free sulphuric acid was found in them. One sample contained in a gallon 48-48 grains of sulphate of lime, 83-14 of free sulphuric acid, and 440-12 grains of lime.

The fact of its containing a large amount of free sulphuric acid renders it a dangerous adulteration for the daily uses of the many. Its relative sweetness compared with cane sugar is as 1 to $2\frac{1}{2}$ of glucose, consequently this may account for our good housewives losing more or less of their sweetmeats since the adulteration has been in vogue.

It has long been a mooted question with us why the little busy bee should rise in his might to defend his habitation against the approaches of his neighbor homo. This sagacious little insect must have had forebodings of his neighbor's intentions to counterfeit his honest self-deposited nectar, known to commerce as honey. Therefore his aversion to the homo race. It is said to be a notorious

fact that man not only adulterates strained honey with glucose, but actually uncaps the cells of the honeycomb and by the aid of the centrifugal machine empties the cells of their contents and then fills them with glucose syrup containing a little honey, and then caps over with melted paraffine or beeswax.

Not long ago a friend of ours informed me that he purchased some of this so-called honey in the city of Chicago.

Prof. Pratt informs us that the composition and coloring matter of confectionery articles render them wholly unfit to enter the stomachs of living beings.

Candy has been found on analysis to contain glucose sugar, a little cane sugar, and from 25 to 42 per cent. of indigestible and deleterious substances, terra alba being the larger one of these substances.

The coloring matter, he says, frequently contains some of the following ingredients: gold, silver and copper bronze, containing alloys of copper and zinc, carbonate of lead, bisulphuret of mercury, red oxide of lead, bisulphuret of arsenic, iodide of mercury, yellow chromates of lead, protoxide of lead, sulphuret arsenicum, sulphuret of antimony, gamboge, iodide of lead, Prussian blue, indigo, cobalt, smalt or glass cobalt, sesquicarbonate of copper, ultramarine, a double silicate of alumina and soda, chromates of lead and indigo, subcarbonate, diacetate, oxychloride, and arsenite of copper, etc.

Of the jellies I will simply say they are compounds of gelatine or glue, glucose, corn starch, soured with sulphuric acid and flavored with a mixture of glycerine, the ethers, and alcohol, etc. Slight changes in the flavoring and coloring matter will give any jelly required.

In passing on you will please allow me to give you a few hints bearing upon the adulteration of dairy products:

It would seem that of all others this should be kept pure and unadulterated as it enters so largely into the food of the human family, and especially so when the food of the young or those of tender years.

Milk is, or has been, quite frequently adulterated by the use of borax, soda, burnt sugar, calves' brains, chalk and water. Milk is heavier than water, usually, in the proportion of about 103 to 100 of water. When newly taken from the cow milk is almost always slightly alkaline, but when exposed to the air it soon changes and becomes slightly acid.

Cheese, the coagulated caseine of milk, when made of pure unskimmed milk, holds more or less of the fat or butter of the milk, which undergoes a change by the action of the caseine, together with the sugar contained in the cheese upon it, thereby giving to this cheese when cured that richness which the skim cheese never acquires. Cheese is or has been adulterated by the addition of coloring matter, poor butter, deodorized grease, hog's lard and anti-huff, the last of which is far more potent than either of the others, being composed of caustic soda and caustic potash.

Pure butter, made from the milk of the cow, is composed of margarine or solid fat, about 60 per cent.; butter oil, about 38 per cent., and butyric, caproic and capric acids, about 2 per cent. in one hundred parts.

This margarine, or solid fat, which so largely exists in pure butter, is also the solid ingredient in olive oil, goose oil and human fat. Butter, therefore, appears to be a most natural food for the human race, containing as it does so large a proportion of one of those substances which enter directly into the constitution of the human frame.

Among the adulterations of butter is oleomargarine, made by churning with cream, milk or buttermilk, tallow oil, deodorized grease, parts of animal tissue, and other admixtures which are mixed with pure butter, and sold, or so reported, as pure creamery or dairy, and eaten by the many supposing it to be so. I place suine or butterine, as they are similarly made and used, in the same category as oleomargarine. Dr. R. W. Piper reports having found eggs of tape-worm, also bacteria and fungi, etc., in the oleomargarine. Dr. Cobold informs us that the cysticercus, from which one kind of tape-worm springs, is found in the fat of swine, and that it is not proven that it does not exist in the fat of the ox. It is quite certain that the tape-worm in the human family is largely obtained, if not wholly so, from the beef and swine eaten too rarely cooked. Now it is said that lard or tallow used in making suine and oleomargarine never is heated above 120 degrees F. If this be so, I would not wish to eat it.

Prof. Virchow informs us that he boiled a cubic inch of pork for twenty minutes and fed it to a rabbit and trichinosed the rabbit.

There was a case reported from Iowa some years ago where a Mr. Bemus and some three or four other members of his family ate of an uncooked ham and died. Mrs. Lansing, a married daughter, ate from the same ham after boiling for some time and was badly trichinosed, but finally recovered. Mr. Lansing ate from the same ham after boiling much longer and was not sick at all. Therefore I say most emphatically, when you eat trichinæ be sure that they are well cooked, whether in suine, butterine, oleomargarine, or ham.

Cook beef well whether in the foregoing bogus butters or in steak, and the tape-worm will not be likely to visit you.

Butter has been adulterated with a kind of magnesian earth called talc.

Coffee when ground is frequently adulterated with chicory or succory, which is a species of the garden endive, and is said to contain tonic, aperient, deobstruent and diuretic qualities, and might be contra-indicated in diseases of the kidney. It is also reported as having been adulterated when ground with dried ground liver. Coffee in berry that is poor is made to take on a fine surface by being placed in a heated and oiled copper cylinder, which is kept rolling until the kernel assumes a nice, plump, green appearance. Not long ago I saw a lady friend purchase some of this coffee. I asked if she usually washed her coffee before roasting. She said no. I suggested that she wash this. The next day I received a bottle containing water and sub-acetate of copper from her with a note asking what it was.

Now, ladies and gentlemen, having barely broached this subject of adulteration, and not having time or space to further pursue it, I will leave it, and if you will bear with me, will try to show you how these articles, or at least some of them, may get into the human system. In order to do this understandingly, you will please study with me the anatomy of the circulatory system for a few moments, commencing with the lacteals and lymphatics, which receive from the ingesta that portion of it which enters the circulation and system proper. These lacteals are located in connection with the bowels in the abdomen, the lymphatics generally over the system. They both enter and pour their contents into the thoracic duct which passes up through the thorax and empties its contents into the left subclavian vein, and this in turn pours its contents into the superior vena cava, from which it is received into the right auricle of the heart,

thence to the right ventricle, by the contraction of which it is forced through the pulmonary artery to the lungs for aërication, after which it enters the veins and passes to the left auricle of the heart, from this to the ventricle, which contracts and forces it into the aorta, and away it goes. This chyle, sometimes called pabulum, of a few moments ago, with its contents mixed with the blood, is carried to every part of the system to build up, nourish and replenish the same. Now, suppose this chyle, the circulation of which I have been describing, was to contain alcohol, arsenic, or other foreign matter, which it, no doubt, frequently does when those substances are contained in the pabulum. If alcohol be so taken in, a portion may be lost in passing through the lungs, as I trust many of you may chance to know who have been in a close room with a toper. Some forty years ago, at an inquest of a man who a few hours before had been drinking largely, I was required to examine the brain, which I removed and passed to the jury, and it was found to be so saturated with alcohol that I verily believe it would have been fired had a match been applied. How did the alcohol get to this brain if not through the circulation? Then, again, if you feed a young pig madder with his food for a week or two and then use food minus the madder for about the same time, and so alternate for a while and then butcher, you will find the bones striped in alternate layers. This shows very conclusively that the madder must have entered the circulation.

Arsenic is frequently found in the liver when none is found in the stomach. There is a case now under examination where the stomach was washed clean of it, and it is being found in the liver. This must get there through the circulation.

We are quite too much given to believe that a person must die almost instantaneously if poisoned, which is by no means the case. A person may be poisoned by piecemeal, and not suspect it for a long time. For example, look at the arsenic eaters of India, who use it almost daily for a long time. Nevertheless it is all this while making its inroads in a clandestine manner, which will bring up, sooner or later, most assuredly.

There is one thing of which we are morally certain, and that is that quite a number of diseases are fearfully on the increase in our country at the present time. I allude to insanity, cancer, kidney diseases, and many others which I will not now stop to enumerate.

Let us stop and cast a thought at the wonderful increase of insanity within the last decade. In 1870 the United States had 37,432 insane persons. Of this number four were Indians, and, according to the census of 1880, the whole number have increased to 91,997, of which 66 are Indians. You ask, why this fearful increase of insanity, and especially so among the Indian tribes? Allow me to say we are feeding them to a greater or less extent, and the more food and whisky they get from us the more insanity we find among them. This tells the story in a very few words. If this holds good with the Indian tribes, what shall we say of the white race, who are becoming insane by the thousands. If adulterated food is not one of the most potent of the existing causes, then what is?

In regard to cancer, I will simply say that this difficulty is on the increase, evidenced by the large increase of epithelial cancers of the lips, tonsils and throat, no doubt largely caused by the use of tobacco. Other parts of the system are equally liable to cancerous diseases, but I have only mentioned the

above, as they are prominent and more likely to be observed by the casual observer.

In regard to diseases of the kidneys, I may be allowed to say, they are very largely on the increase. Some people are disposed to attribute this increase to the lime in the water. Did not the water fifty years ago carry the same amount of lime as to-day, and did not the system require as much then to build up and repair it as now, and no more? Then why, if this be the remote or exciting cause, have these diseases increased so rapidly within the last half century? Allow me to say that the adulteration of food was not as common fifty years ago as now; neither was albuminuria or any other disease of the kidney. From this you are at liberty to draw your own conclusions.

If I mistake not, Professor Beal informs us that bioplasm is living or germinal matter, and yields first, fibrin; second, albumen; third, fatty matter; fourth, salts; fifth, water.

He also informs us that this bioplasm is nourished by the pabulum, and, if too rich in certain materials of nutritive quality, it may result in inflammation.

He makes mention of three kinds of morbid bioplasm—pus, contagion, tubercle. Each of these morbid conditions may be the result on the vital living material or bioplasm of a pabulum containing other than pure nutritious matter. Suppose, for instance, we give a person mercury with his pabulum, the result, in a short time, would be seen on the glandular system. Then, again, we feed him nitrate of silver, and ere long his skin begins to blacken; or, if it be belladonna, the pupils of the eyes begin to dilate; if it be opium, they contract.

In conclusion, please allow me to say that if I have advanced one idea by which you may profit I shall feel myself amply paid, but, be that as it may, I can but hope and trust you will turn your attention to the counterfeiting of food and medicine, and strive, with all the powers that you can bring to bear, to do away with this nefarious business, which is a thousand times worse than the counterfeiting of money, which only affects the pocket, while the counterfeiting of food and medicine may cause a person who is so unlucky as to have to use it to drag out a miserable existence for a lifetime, while dollars and cents would only affect the pocket for a time, and would hold no comparison to that of good health. It will require all the energies of the farming community to bring about a change, which they can unitedly do if they choose. They have the power if they choose to use it.

DISCUSSION.

MR. BOYD: Doctor, did you ever analyze any of this butterine that is made in the West?

DR. TEEFT: A few days ago I was in Chicago at the Fat Stock Show; there was butter and butterine there. Passing through the butterine room, they gave me a sample of butterine. They said it was 50 per cent. lard, and 50 per cent. creamery butter. I took it home and made an examination, and I should judge it contained about 10 per cent. of butter and the balance was hog lard and perhaps some tallow. My process is very simple. I take test tubes and set them in lukewarm water, and when they get warm I put my butter and butterine into the tubes. After they are melted, if it is pure butter, it will be a pure transparent oil on top, and below will be the caseine, while the

butterine you will find to be cloudy, both above and below. I took those samples and put them on a slide and under a microscope. The butterine showed small particles of crystalization, some small rosettes of crystalization and some butter. The butter crystalized into larger crystals, and on polarizing, it produced a Greek cross on the crystals. After polarizing it, I applied a selenite plate, and I had a beautiful color running through the pure butter, while in the suine only those particles of pure butter that I found contained these marks. The suine did not contain any of those crosses, nor the beautiful color found in the pure butter.

MR. JOHNSON: One principal argument against the manufacture of butterine is, that it contains these parasites, and that they are not destroyed by heating it properly. Do you know exactly at what temperature this stuff is heated?

Answer. I don't know what the temperature is. I have heard that 123 degrees will kill trichinæ. I know that is not so, because I have tried it and had them squirm upon my glass afterwards.

MR. BOYD: They heat it at 110. If they raise the temperature it gives the product a lard taste; the consequence is, they have to render their lard at a low temperature—110 is the maximum heat.

MR. BUELL: It seems to me that the paper which Dr. Tefft has presented to us is very valuable, and there is one point which he makes which I would like to emphasize, and that is against all food adulteration, and it seems to me that something possible might be gained, in making our effort against the adulteration of butter, to include other food adulterations as well. Let us stand up against the adulteration of all food. Let us have some more effectual and wholesale law than we have at present to control that.

MR. LESPINASSE: I would say to this association, that within a few days there met in the city of St. Louis, the American Health Association, whose sole object seems to be to fight the adulteration of all foods, and is composed of the most eminent and scientific authorities of the United States. That association, I understand, is composed of delegations from various organizations throughout the country, who are interested in the adulteration of food products, and in order to carry out the idea of Mr. Buell, which is a good one, it would probably be well to have the authorities of this Association confer with the delegations of that association on this subject.

MR. BOYD: It seems to me Mr. Buell's suggestion is a very wise one, but there is no trouble in getting a law passed against adulterated goods; the thing is to execute the law. You are no better off after you get a law fining a man \$500.00 for giving you spice mixed with sand, or lard for butter, unless you can convict him, and that is the point you want to work for.

DR. TEFFT: We lack the machinery to execute the laws of this country. I say, let us have the machinery to execute the laws, then they will amount to something. There was a law passed last year, but it wound up with a clause providing that if the man said he did not know that the stuff he was selling was adulterated he could not be convicted, and, of course, that spoils the law, because it is easy enough for parties to say that they do not know that a product was adulterated. They do not see it put in; more than that, it is so hard to get the proper evidence. Not long ago I saw a case where Dr. Mott, of New York, examined this stuff, and he reported that there is nothing unhealthy in it. Well,

Dr. Byford examined it, and he reports that there is. Now, how are you going to convict anybody on such evidence as that?

MR. BUELL: It seems to me that the first point for us is to find out how to make a law that will be effectual, which can be executed. I confess that I am not able to suggest any such law, and I doubt if there are any in this association who are lawyers enough to do so. What we want is to consult a man in whose opinion we have confidence, and it seems to me that the first thing for this association to do, in their efforts to suppress the manufacture of butterine, is to consult eminent counsel as to what should be done, and pay him \$100,00 or \$200,00 or \$500,00, if necessary. Let us have a law which shall be effectual under our constitution. It seems to me to be folly to expect our legislators to act, when we don't know what we want or can do ourselves. The first question to settle is, What kind of a law do we want?

MR. BOYD: I cannot agree with Mr. Buell. This is a practical question; it is not a question for lawyers at all. If you cannot answer it there is no hope for you.

MR. CURTIS: we have a law in New York, which we think is quite effective. We have a law for the suppression of all imitations, adulterations, counterfeits and frauds, and the only portion of that law, which was pronounced unconstitutional, was the single clause prohibiting the manufacture of a substitute for butter. Now, a substitute may be a very nice article, and all our progress in this world comes from substituting a better thing than what we already have, but that is different to a counterfeit, which is sold for the genuine.

MR. JOHNSON: With this law, have you sold less butterine than you did before?

MR. CURTIS: Yes, and have had a great many convictions. Within two or three months we have had sixty convictions in the city of New York. That shows, of course, that we are actively pushing it, and these fellows will get sick of it after a while.

Convention adjourned to meet at 2 o'clock P. M.

Convention met pursuant to adjournment at 2 o'clock P. M.

CORN-STALKS COMPARED WITH MIXED HAY AND CLOVER HAY FOR PRODUCING MILK AND BUTTER.

BY PROF. W. A. HENRY,

Of the Wisconsin Agricultural Experiment Station, Madison, Wisconsin.

The following described experiments were conducted to ascertain :

- 1st. The relative values of corn fodder and mixed hay for producing milk and butter.
- 2d. The relative values of corn fodder and clover hay for producing milk and butter.
- 3d. The amount of milk and butter an acre of corn will make when fed to milch cows.
- 4th. The value of an acre of corn when turned into milk and butter.

All the materials fed were good of their kind, the corn-stalks being from a lot described further on, cut early, and well cured in the shock and bound into bundles, after husking the fully matured ears. The mixed hay was about one-third clover and two-thirds timothy. The clover hay was from medium red

clover, cut early enough to preserve the leaves and heads in good condition. The corn meal was from Kansas corn, thoroughly dried and ground fine. The bran was Minneapolis new process.

The hay and fodder were fed long, thus necessitating much waste with the corn-stalks, which might have been avoided by running the stalks through a cutter, but as this was a preliminary trial, it was deemed best to take each fodder in its simplest form, leaving other tests to show us the loss by feeding in this way.

Four excellent butter cows were selected and divided into two lots of two each, of equal capacity for producing milk and butter as near as we could judge. During the trials they held their weights and maintained their appetites so well that no further mention need be made of these points.

In every trial a week's preliminary feeding preceded the two weeks of actual test, this time being considered necessary for accustoming the animals to their diet, and to get the full effect of the food on the milk.

In the first trial the ration of Lot 1 was 5 pounds of corn meal and 7 pounds of bran per cow, daily, in two feeds, fed dry, and as many corn-stalks as they would strip of the softer, finer parts. The ration for Lot II was the same as that of Lot I, except for the corn-stalks mixed hay was substituted, a full supply being kept before them. After feeding carefully for a week the ration was continued and the milk and butter product saved for fourteen days. At the end of this period the hay and corn-stalks of the two rations were changed about for the two lots and the trial repeated. The two cows of each lot, therefore, were on both sides of the trial, thus eliminating largely the errors due to the difference in individuals.

Six weeks were required to complete the test with mixed hay and corn-stalks, and this done, the whole trial was repeated, except that clover hay was substituted for the mixed hay, the corn-stalk ration being continued.

The tables here given show in a condensed form the results.

FIRST TRIAL—CORN-STALKS VERSUS MIXED HAY.

Two cows in each lot ; each period 14 days.

	Numbers of the cows of Lots I and II.	Amount of corn-stalks fed.	Amount of mixed hay fed.	Refuse weighed back.	Amount of corn-stalks eaten.	Amount of hay eaten.	Amount of corn meal eaten.	Amount of bran eaten.	Amount of milk given.	Amount of butter made.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lb. oz.	lb. oz.
First period, Jan. 9--25. ...	1 & 2	1,186	.....	436	750	.....	140	196	640.9	29.13
	3 & 4	.....	300	26½	.....	273½	140	196	480.8	28.10
Second period, Feb. 4--18...	1 & 2	.....	455	11	.....	444	140	196	583.7	27.7
	3 & 4	1,188	.....	367½	820½	.....	140	196	480.3	27.3

SECOND TRIAL—CORN-STALKS VERSUS CLOVER HAY.

Two cows in each lot ; each period 14 days.

	Numbers of the cows of Lots I and II.	Amount of corn-stalks fed.	Amount of clover hay fed.	Refuse weighed back.	Amount of corn-stalks eaten.	Amount of clover hay eaten.	Amount of corn meal eaten.	Amount of bran eaten.	Amount of milk given.	Amount of butter made.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lb. oz.	lb. oz.
First period, February 26—	{ 1 & 2	922½	.....	348	574½	.....	140	196	607 13	25.12
March 11.....		.....	366	49½	.....	316½	140	196	497.13	25.8
Second period, March 19—	{ 1 & 2	.....	276½	19	.....	257	140	196	561.4	29.0½
April 1.....		.....	944½	298½	646	.....	140	196	471.6	26.6½

Comparing corn-stalks with the mixed hay, when supplemented by 280 lbs. of corn meal and 392 lbs. of bran, we find :

2,374 lbs. of corn-stalks yield 1,120 lbs. 12 oz. milk, making 57 lbs. 0½ oz. butter ;
 755 lbs. mixed hay yield 1,063 lbs. 15 oz. milk, making 56 lbs. 1½ oz. butter ;

or, 56 lbs. 13 oz. milk and 15 oz. of butter more from the stalks than from the mixed hay.

Comparing corn-stalks with clover hay, as in the previous instance, we find :

1,867 lbs. corn-stalks yield 1,079 lbs. 3 oz. milk, making 52 lbs. 2½ oz. butter ;
 642½ lbs. clover hay yield 1,059 lbs. 1 oz. milk, making 54 lbs. 8½ oz. butter ;

or, 20 lbs. 2 oz. more milk, and 2 lbs. 6 oz. less butter from the corn-stalks than from the clover hay.

Taking into consideration the fact that the milk and butter yield are both larger from the stalks than from the mixed hay it is fair to say that the corn-stalks were worth one-third as much as the mixed hay ; that is, one ton of mixed hay is worth three tons of stalks, fed as these were.

From the second trial we see that one ton of clover hay was worth somewhat more than three tons of corn-stalks, fed as described.

In the two trials 4,241 pounds of stalks were fed, and 1,450 pounds weighed back as coarse parts that the cows refused to eat. This is over 34 per cent. of the whole amount of the stalks, by weight, lost by feeding in this manner. Whether the part thus lost is proportionally as valuable as that eaten, and what amount can be saved by passing the stalks through a feed cutter is work for future experiments.

Arranging our figures in another form we have the following :

Food required for 100 pounds of milk when feeding corn-stalks:

193 pounds of corn-stalks.
 25 pounds of corn meal.
 35 pounds of wheat bran.

Food required for 100 pounds of butter when feeding corn-stalks:

3,880 pounds of corn stalks.
514 pounds of corn meal.
719 pounds of wheat bran.

Food required for 100 pounds of milk when feeding mixed hay:

71 pounds of mixed hay.
26 pounds of corn meal.
36 pounds of wheat bran.

Food required for 100 pounds of butter when feeding mixed hay:

1,348 pounds of mixed hay.
500 pounds of corn meal.
700 pounds of wheat bran.

Food required for 100 pounds of milk when feeding clover hay:

60 pounds of clover hay.
26 pounds of corn meal.
37 pounds of wheat bran.

Food required for 100 pounds of butter when feeding clover hay:

1,179 pounds of clover hay.
513 pounds of corn meal.
718 pounds of wheat bran.

From the data here given one can easily calculate the cost of food necessary to produce one hundred pounds of milk or butter. Supposing hay is worth \$8.00 per ton; then the corn-stalks would be worth \$2.66, or one-third the value of the hay, as shown by these experiments. Suppose, further, that bran can be had for \$12.00 and corn meal for \$15.00 per ton. Assuming these prices we will find that the food necessary to produce one hundred pounds of milk costs, as the average of the before detailed experiments, about 66 cents, and the food to produce one hundred pounds of butter costs about \$12.84.

In considering these experiments the reader should bear in mind that during each of the four periods, lasting three weeks each, including the week of preliminary feeding, the cows were upon one variety of food, and that only. Variety in food is as essential to beast as to man, if we wish the best results, and these results may be looked upon as the lowest we should receive from these food articles, rather than average or high results. Any careful feeder of dairy cows has observed that the cow is the quickest of all animals on the farm to appreciate and respond to variety and a change of diet from time to time.

The corn-stalks used in these experiments were from a plot of ground 3.27 acres in area. This corn was grown upon tile-drained land that in former years had been of little value, owing to crops drowning out almost every year.

The corn was of the Pride of the North variety, a small-stalked, small-eared, early yellow dent corn. The 3.27 acres produced 14,684 pounds of stalks and 16,160 pounds of ears, or 4,490 pounds of stalks and 4,941 pounds of ears of corn per acre. This was 68 bushels of 72 pounds each.

With these facts and those of the experiments before us, let us attempt to estimate the butter that can be produced from an acre of our corn land.

For this purpose let us assume that the 4,941 pounds of ears from an acre would make 4,000 pounds of corn meal, allowing for shrinkage and grinding about 20 per cent., which is fully enough for corn as dry as this at husking.

Now, most farmers would be unwilling to trade a ton of corn meal for a ton of bran, but let us substitute bran for corn meal, pound for pound in part, so as to have seven pounds of bran for each five of corn meal. The two tons of corn meal then would give us 2,334 pounds of bran and 1,666 pounds of corn meal.

By our experiments we have shown that by feeding as described, 193 pounds of corn-stalks made 100 pounds of milk, and for 100 pounds of butter 3,874 pounds were required; also that 25 pounds of corn meal and 35 of bran were required in addition to the corn-stalks for 100 pounds of milk, and 514 pounds of meal and 718 pounds of bran for 100 pounds of butter.

From this we see that an acre of land produced sufficient grain food for 6,664 pounds of milk, or 324 pounds of butter, and sufficient corn-stalks for 2,324 pounds of milk or 115 pounds of butter.

Valuing milk at \$1.00 per 100 pounds and butter at 20 cents per pound (winter prices) we find that one acre of land produced sufficient corn-stalks for \$23.24 worth of milk, or \$23.00 worth of butter, and meal sufficient for \$66.64 worth of milk, or \$64.88 worth of butter.

It will be noticed that about three acres of corn-stalks are necessary to supplement the corn from one acre, as we fed it. Practically the farmer can grow hay in part for coarse feed, thus giving variety and maintaining the balance between crops, so essential in successful farming.

During the coming winter it is designed to continue experiments in this direction, using the feed cutter to reduce the corn-stalks to a condition in which they can all, or nearly all, be eaten.

DISCUSSION.

MR. COHOON: Do you have any trouble in cutting up corn-stalks in hot weather? Does it color the corn very dark—not mold it, but turn it very dark?

Answer. That I would not like to talk about now, sir.

MR. COHOON: My discovery is, that in cutting up corn in hot weather the leaves turn very dark, dark brown, while if you cut the same kind on a cool day it is a great deal better.

MR. WHITE: There is a suggestion in regard to the value of clover hay, which I would like to see brought out, of the relative amount of it that can be produced to the acre profitably to the land; also the value of clover hay as compared with mixed hay?

Answer. I cannot tell that.

MR. WHITE: I would state from my own experience, that we can just as well raise at least three or four tons of clover hay to the acre, and improve every year the quality of our land, while, with timothy predominating, we are deteriorating the quality of our land, and producing from 1½ to 2 tons of hay. I would like to have our farmers come to certain knowledge of the actual value of clover hay as compared with other hay.

MR. ALLEN: I believe that I have got land that I have taken four tons to the acre off this year and last year too, but the ground was very heavily dressed, and this last Spring it was very heavily dressed with the best manure on the farm.

PROF. HENRY: Do you not think you could make butter at 25 cents a pound on that land?

MR. ALLEN: Well, perhaps I might, but the trouble is I have to pay for labor.

MR. BUELL: Prof. Henry, will your cows eat corn-stalks without steaming?

Answer. Oh, yes, do not think about steaming. If you cut it you have put on about as many agricultural frills as a man in the country can afford. I find it very easy to drift into fancy farming, and it is hard to come back to country farming. There are a good many of my friends who make their money in the city and spend it in the country, and it is easy to cater to their tastes. Let me tell you: we went out the other day and brought in just 500 pounds of corn-stalks, and put them through the feed cutter in 21 minutes. It was driven by the wind-mill, and the wind was blowing 17 miles an hour. The man later went out and drew in another load, which he said he cut in 19 minutes, so I think it is fair to say, you can cut 500 pounds of those stalks in 20 minutes. If you can do that, I think probably it will pay to cut our corn up. I have not figured that yet.

MR. BOYD: Can you give us an estimate of about what horse power it took to cut that corn.

Answer. We have transferred to our sweep machinery, and three horses will cut from 1,500 to 2,000 pounds in an hour.

Question. What kind of a cutter did you use?

Answer. The cutter we use is not common in the West. I found they had used it in the New Jersey Experimental Station, and I wrote to them for this reason, that the ordinary cutter, in cutting these corn-stalks, cut them with a sharp edge, which sometimes injures the cows' mouths. I sought for a machine that would stop that, and I found it in this. I want you to stick to the fact that corn is king.

MR. WHITE: And clover is queen.

PROF. HENRY: Yes, with the corn and the clover and then buying some bran, you have about a perfect feed. Of course, if you cannot have both, the clover is preferable.

MR. BOYD: Professor, how long have you had your silo?

Answer. We have had our large silo about five years, and then a couple of small ones about two years.

MR. BOYD: Is it growing in popularity with you?

Answer. Well, the ensilage question came along, and it caught a lot of city farmers and theorists, and it swept like a storm of wind over the country. Now, friends, in legitimate farming, save in occasional speculative periods like the early wheat days, farming is a business of small profits. It must necessarily be so, and it would be very strange that anything could be introduced that could multiply our profits, but it has been found out lately that the ensilage can be a help to us. At first they told us that we must build a strong, strong building, which must be air tight, and we must have teams and men and threshing machines working, and it was enough to scare an ordinary farmer even to talk about, and we did a great deal of hard work in building the first silos and got sick of it. This fall we started our cutter, putting three horses on the power. We drew up our stalks and put them into the silo, and when we wanted to stop we quit, and the next day we put in some more, or we let it alone, as we wanted. We worked that way whenever it was convenient, until we put in over 50,000 pounds of corn. Then our second crop of grass was growing around the

university, and we drove the mower around and cut that, and drew it in, and pitched it into the silo. We did not stop for dew or anything. A friend of mine, who has done the same thing, opened his silo about two weeks ago, and he says it is a magnificent feed. Now, if a farmer can utilize his work that way, can tumble his stuff into the silo and put a few boards on top and leave it, it is not such a great task as we used to think it must be; if ensilage has come to that, I do not see why it has not come to stay. The silo must be strong enough so as not to bulge with the weight. I should say that 2×8 's, stood up until you get something like 14 feet, would be plenty strong, boarded on the inside with building paper and rough-boarded on the outside.

Question. All above ground?

Answer. Yes.

Question. What is the quality of the butter made from this ensilage—is it as good as from clover hay? is it as high flavor?

Answer. Well, we have sent butter to Chicago made from both, and they could not tell which was which.

Question. What is the advantage of putting clover into a silo?

Answer. Only this, that our second crop of grass comes at a time of year when it is very difficult to cure. The ground is no longer hot, and the clover cures very slowly. With a silo, a farmer can cut it and right away put it in, just as he pleases; that is about all the advantage there is, but that is a very material advantage. The feeding value is no greater. Now, there are a good many of these questions that come up, which you farmers cannot answer. You have not the time nor the conditions by which you can pursue investigations, and the Commonwealth of Illinois should employ and pay men to pursue just such investigations. While the States all about you are marching on, I think you should fall in line with us. It is surprising the way the States are progressing; I find that men are being educated all along the line. Why is it that young men are not preparing themselves for this work? Last summer I stood in a meeting of agricultural teachers at Ann Arbor. There was a professor from Nebraska, one from Wisconsin, one from Michigan, two or three scientists from New York, and so on. A man stood up there, and he said, "I wish to have a young man come to our State and start an experimental station; can you tell me of such a man?" and we honestly could not tell him of such a man. Why these young men are not more of them qualified for such positions is something that I cannot understand.

MR. JOHNSON: I understand that Professor Henry comes down from Madison without any pay from this institution except his expenses. I move that a hearty vote of thanks be tendered to the professor, and to the State of Wisconsin for allowing him to come down. Motion seconded and carried unanimously.

TILE DRAINING.

R. M. PATRICK, MARENGO, ILL.

Mr. President and Gentlemen of the Convention:—I have been invited to relate my experience in tile draining, and its effect upon lands drained.

To some this subject will be dry and uninteresting, but to the owners and cultivators of lands I hope to say something which will awaken in them an interest in this important subject.

If you should ask me whether tile drainage was a benefit to land, or whether it paid, I might, with equal propriety, ask you whether the railroad was an improvement over the old wagon road, or whether the telegraph was an improvement, or whether the reaper, the mower, the corn-planter and check-rower were improvements on the old methods of doing work.

Tile drainage converts unproductive and unprofitable lands into productive and profitable lands. It enables the farmer to raise large crops of corn on lands which, before drainage, were nearly or quite worthless for cultivation. It enables him to raise from $1\frac{1}{2}$ to $2\frac{1}{2}$ tons of choice timothy hay; when before drainage not more than $\frac{3}{4}$ to 1 ton of inferior hay grew. It prepares land for producing \$10.00, \$12.00 to \$15.00 per acre, which, before drainage, would barely produce \$3.00 to \$5.00 per acre.

The great competition which the farmers of this portion of the West are compelled to meet, by the opening up of the vast country west of us, is constantly reducing the profits of farming. To meet this competition, we must make our lands more productive. We must drain and enrich them. We must convert wet and unprofitable parts of our farms into dry and productive lands.

Where a 160-acre farm is now keeping 25 cows, it can and must be made to keep 40, 50 and even 60 cows. In this way only can our high-priced lands be made profitable, and in this way only can we compete with the cultivators of cheap lands west of us.

Probably in no one thing has this State made greater progress, during the last ten years, than in tile draining.

It is claimed the first tile were made in Illinois, in 1858, by a hand machine, and met with a very small sale, and were chiefly for draining cellars. In 1875, there were, 24 factories in the State; in 1880, 166; and in 1884, 536; producing 177,000,000 of tile, enough to lay 33,500 miles of drain, or enough to reach $1\frac{1}{2}$ times around the globe.

Notwithstanding so many tile are yearly made, and yearly laid, only a tithe of the lands in this State have been tile-drained; and I predict, that during the next ten years, from 3 to 5 times as many tile will be laid as have been laid during the last ten years.

About seven years ago, I made my first experiment in laying tile, and the results, I may say, far exceeded my expectation. It converted what was before a very unprofitable and unsightly field, into what is now one of my richest and most productive fields. Since draining, I have raised successively, on this land, corn, oats and grass. When in grass it has produced from 2 to $2\frac{1}{2}$ tons of timothy hay per acre; and when in corn, it has been estimated from 60 to 75 bushels per acre.

The entire cost of draining this field thoroughly was about \$9.00 per acre, and I am fully satisfied that the increase in the first two crops fully paid the cost of draining it, and I will say right here, that I firmly believe that the increased product of any well tile-drained field will fully pay the cost of drainage in one to three crops.

Since my first experiment I have put down on an average of something over one mile of drain a year, and now have, in full operation, about eight miles of drain. I have taken one field at a time, and drained out every imper-

fect spot, leaving no open drains when large tiles would carry the water. In this way I have drained something over 200 acres thoroughly, so that every rod of land in these fields can be plowed and cultivated successfully.

During my experience in tile draining I have made some mistakes. At first I laid a few tile too small, and not deep enough. These I have mostly replaced by larger tile, laid deeper.

In the second field drained I made the mistake of having the side drains empty into an open ditch. I have since put large tile into the open ditch, receiving the water from the side drains with only one outlet for something over 400 rods of drain.

I have found it much better to have only one or two outlets in a field than a large number to keep open, and that all outlets must be thoroughly looked after and cleaned out spring and fall.

I have found, to make drains the most effective, they must have good, clear outlets, which will not easily fill up, even if the lower end of the drain should not be more than 18 to 24 inches under ground.

I have found an average depth of 3 feet, and a distance of 5 to 18 rods apart to drain land thoroughly.

I should never use tile less than 3 inches in diameter, and for mains 5 to 8 inches.

For side drains exceeding 20 to 25 rods in length, I lay the upper half with 3-inch and the lower half with 4-inch tile,

In all long drains and mains the size of the tile must gradually increase in size from the upper end of drain to its outlet; and in laying the tile, always commence at the upper end of the ditch, but commence digging at the lower end.

Tile drains to be effective must be straight on the bottom, and a small stream of water running through the ditch is the simplest and surest way to get the bottom of the ditch straight.

To those who have lands which need draining, I would say: commence on a small scale as soon as possible, and do something at it each year; and get information upon the subject from reading, observation and experiment; and, after you have once commenced draining your lands, I predict you will not stop until they are thoroughly drained.

					Tile.	M.	Total in Rods.
16	3-inch	Tile cost	\$11.00	per M.....	17.6	x 25	= 42.6
16	4	"	18.00	"	28.8	x 25	= 53.8
16	5	"	25.00	"	40	x 25	= 65
16	6	"	35.00	"	56	x 25	= 81

DISCUSSION.

MR. JOHNSON: Do you figure anything for the cost of hauling the tile from the car to your farm?

Answer. No sir, I never figure that. We haul our tile, a good deal of it, in the winter, and have it ready for use in the spring.

PROF. HENRY: What you think is that a man should not go to town with a load and then go home with the wagon empty—and he full, but if he goes home empty and his wagon loaded with tile he can fix it.

MR. HOSTETTER: When the stream gets high after you have laid tile into the stream, do you find difficulty?

Answer. Yes, I have a good deal of difficulty, sometimes. The stream backs up so high it is clear to the top of the banks. That is the trouble where you run it into a creek; the water not only backs up into the tile, but it fills up with dirt, and we sometimes have to dig out several of the tiles to get the dirt out.

Question. If you were putting them in that way, how near to the top of the bank would you put them? Would you put them within a foot of the top of the ground?

Answer. If I were going to run it into a creek, I would rather have it come within a foot of the top of the ground, and have a good outlet, than to have it deep with an outlet obstructed all the time.

MR. CHESTER: I would like to ask Mr. Patrick to give us his reasons why we should begin laying at the upper end?

Answer. If you commence laying tile at the lower end, in the first place, your ditch must be completed before the tile is laid. You must know that your ditch is straight, and if you have a stream of water running through, you know it is perfectly straight. Then, too, if you commence laying at the lower end the water is washing down continually, and filling up the tile. But if you commence at the upper end you have nothing of the kind to contend with.

MR. HOSTETTER: Can any ordinary person who has had no experience lay tile, or does it require an experienced person?

Answer. Oh, I suppose he could, but I do not suppose he would lay them very well.

MR. JOHNSON: How would you work it if you had a little quicksand?

Answer. It is not an uncommon thing to have to put boards in the bottom of the ditch to cover spots of quicksand.

MR. JOHNSON: I have laid about four miles; it was done by an Englishman and he commenced at the lower end. In case there is a little quicksand, he can work it without going to the expense of cribbing, and that is a very large expense.

Answer. I never knew how to get along with quicksand spots except to lay a board. The tile may lay there while you are laying it, but you cannot depend on its staying there. It may be level twenty-four hours, but the probability is it will sink into the quicksand.

MR. COHOON: What difficulty have you about laying tile near timber trees?

Answer. I never have laid any near timber. I have taken pains to have them out of reach, because I read in my works on tile drainage that the roots will grow towards this tile drainage, and grow into it, and throw them out of place and spoil them.

Question. How near do you go?

Answer. Well, quite a distance, perhaps 40 or 50 feet. The roots of willows will run 15 or 20 feet. I dig everything up. I am not working for any book concern, but I have in my overcoat pocket a little book on tile drainage, which is published at Indianapolis. It costs a dollar a year, or ten persons, by coming together, get it for eighty cents each; and that book has the best kind of information upon tile drainage. I have read them for years, and loaned them to my neighbors.

Question. Would you lay tile in the center of a deep ravine ?

Answer. If you lay but one tile, it wants to be the lowest point you can possibly find, and let it follow the ravine through, if the ravine goes all over the country. If there is much water running through the ravine you commence with a 5 or 6 inch tile ; if it is a narrow ravine, you may calculate it will drain from three to four rods on each side. If it is wider than eight rods, you must have more than a single tile drain to drain it. .

MR. COHOON : I understand Mr. Patrick is running two farms, and hiring all his help, and I would like to hear what he has to say on that point ?

Answer. I keep a careful account of all the outgoes and all the incomes of my farm, just as careful as I would a bank account, and, on the whole, I make my farms pay something—that is, pay a fair interest. It runs all the way from three to ten per cent., but, I will say I do not think I could now make any money on the farms in farming it in the way in which many farmers do. On a small farm of 169 acres, I have seventy head of cattle, and my gross profits on that farm last year, 1884, were \$2,762. Of course, I did not raise all on the farm that the animals ate. We had an average of 35 cows, and on the milk of those cows I averaged \$54 and some cents each, taken to the factory and made up into butter and cheese ; that is what my 169 acres did. That land paid me for the year 1884, 2 cents less than \$6 an acre above all expenses. It cost me about \$53 an acre, that is, the land and the improvements ; I suppose it is now worth \$60 an acre ; I did not reckon any advance on the land. This year the receipts will be about the same, and my expenses a little less. I think the net profit on this year will be between 6 and 7 dollars an acre. On my large farm I cannot do as well. In the first place, there is some waste land on it, and I cannot manage five men to work there to make it as profitable as the two men on the other farm. I have been trying to solve the question for some time why I cannot make it pay as well, and I think that is the principal thing. I can work two men along and accomplish a great deal more than I can the five men together. They will take better care of 40 cows than the others will of eighty. The last farm is 460 acres. I will say right here, I do not believe there are 160 acres of land in this country but what may be made to produce from 50 to 100 per cent. more than it now produces, in five years, if you take hold of it with a determination to do it. In the one matter of cutting the corn, I think there is a great saving. A man who does not cut his corn, down in our neighborhood, is not called a very good farmer now-a-days. If he kept 25 cows before he cut up his corn, he can keep 35 now. We are studying up this thing to see how much stock we can keep on our farms, and at the same time we want to improve not only our land, but our buildings. For instance, the way the old fashioned barns were built, the good is to a certain extent washed out of the manure by its laying out in the barn-yard. Every farmer who builds a barn now, builds it so he can drive straight up through it, and he takes every shovel full right from there to the field every day. You can manure fifteen acres now a year, where you could ten before. It is in the consideration of such things as that that you can make a farm pay. We have got to make our farms produce more hay, more grass, and more money.

Question. Do we understand you to say that no manure is kept around your barns ?

Answer. No, sir; not a bit.

Question. How many loads would we find to-day?

Answer. You could not get enough to bank a house. A school director applied to me the other day for manure to bank up a school house, and I said, "You will have to wait about a week until we can make it. It goes to the field every day right from the stable."

Question. Do you find it as profitable as it is to lay and make?

Answer. There is nothing to make; it is made already. If you let it stand out there two or three months the fertilizing matter is washed out of it.

MR. BUELL: I cannot afford to haul out my manure as it is made, and my practice is simply this, to haul it into the yard for my hogs to pick over, and then in the spring put my manure spreader to work, and my man in the spring will lay out twice as much in the spring as he can in the winter.

Answer. He ought to; he hasn't over half as much to spread. You spoke of the hogs. What you want to do is to let your hogs right into the stable every morning for a while, and you will find they will grow very fast, and it is warm for them there. We let the hogs in every morning, and they pick out every kernel of corn, and by noon the whole thing is ready to go the field. And I am prepared to establish my proposition that manure is worth much more when taken out in the winter than when left to be picked over by the hogs, and allowing a great deal of it to go to waste.

MR. HOSTETTER: Is there not considerable loss in the manure washing away when it is out in the snow in the winter time?

Answer. I think there is not very much—unless it is on a hill side.

PROF. HENRY: A good Wisconsin farmer, who has made a nice little fortune in farming, was asking me one day about a certain experiment, and I told him all about it, and I thought I was doing pretty well in getting him interested. He listened patiently, and as I closed he dropped his head, and said he: "Well, I am glad to learn that science is confirming common sense." Science confirms common sense in this question of manure. Science confirms the fact that the quicker you get your manure on the land, the more you can save. Dr. Volcker, of England, analyzed samples of manure which had lain out in the barn-yard twelve months, and found at the end of the year that he had one-fourth of that manure, and that one-fourth was not the valuable part. It stands to reason that it ought to pay to take it right out. The men can work easier at this time of the year than to leave it till spring when everything is to be done, and very little of it will wash away.

MR. DILLIE: If it is in order, I would like to move that this convention appoint a committee to call upon our legislature with a petition for an appropriation for an experimental station in connection with our agricultural college.

Motion seconded.

MR. CHESTER: Before that motion is put, I would just like to say one word. The experimental stations which have been started have proved an advantage, not only to the farmer, but to every individual citizen in the State. Every citizen of Illinois will be benefited by an experiment that will bring out the fact that we are making wastes of fragments that we ought to gather up. Wherever there are lands or products that are being wasted for lack of intelligence in handling them, this project will be of benefit, and not only there, but to every

individual, whether in town, city or country, because it is adding to the products of this State. Now, I have long felt that the State of Illinois was very negligent in this respect, and I hope that this committee shall be at once prepared to do something towards forwarding this matter when our legislature shall meet again. I am glad that the Illinois dairymen have started this ball rolling, and I hope that they will keep it rolling. It is one of the most important matters that has come before this convention, and I also hope that these members will bear this thing in mind, and agitate it until it shall ring in the ears of every candidate for election to our next legislature, until he knows that only in forwarding this matter will he satisfy, not only the farming community and their interests, but the interests of the consumers of this great State of Illinois.

MR. ROOT: Is it not true that the industrial college at Champaign is merely conducting it on the experimental plan, and the experiments reported annually?

THE CHAIRMAN: I cannot answer that question. I can say this, I get no report from there. I get reports from Wisconsin, from New York, Michigan and other States, but none from our own State.

PROF. HENRY: Prof. Morrow does some experimental work, as I understand, but he is tied down by the greatest curse that a man can be on an experimental farm. He is expected to make that farm pay. Why, I would be turned out of our university if I tried to make our farm pay. If I was obliged to make a farm pay, I would have to begin to run it as a good practical farmer, just as Mr. Patrick does. Now, Mr. Patrick has no time to carry on practical experiments.

MR. CHESTER: I am glad Prof. Henry has made that statement. He knows that Prof. Morrow's hands, as the superintendent of that farm, are absolutely tied to that Board of Trustees, and one of the duties of every citizen of Illinois is that they shall untie them—and untie them with an appropriation for an experimental farm. Then, whatever expense those experiments are to us will come back to us a thousand times over in the benefit it will be to us.

Motion carried unanimously.

Convention adjourned to meet at 7.30 o'clock p. m.

Convention met, pursuant to adjournment, at 7.30 p. m.

Music by the Apollo Club.

Communications read by the Secretary from Gov. Oglesby, Senator Cullom and Prof. Morrow.

LETTER FROM SENATOR CULLOM.

UNITED STATES SENATE,
SELECT COMMITTEE ON INTER-STATE COMMERCE, }
WASHINGTON, November 28, 1885.

R. P. MCGLINCY, Esq.,

Secretary State Dairymen's Association, Elgin, Ill.

MY DEAR FRIEND: Your favor of 21st inst., inviting me to attend the annual meeting of your Association at Belvidere, on the 9th, 10th and 11th of December next, has been received. My official duties here will, of course, prevent me from accepting your invitation, as Congress will at the time have just convened, and there are important interests requiring my immediate attention. I would take great pleasure in attending your convention if I could do so, for I

have watched the growth of the dairy business in our State from year to year with great interest for many years, and trust nothing will interfere with its legitimate development.

It seems to me that it is the duty of the State, not only to the general public, but also to its great dairy interests, to enact and rigidly enforce whatever legislation may be necessary to protect consumers from imposition in the sale of spurious substitutes placed upon the market as dairy butter. The people assuredly have a right to know the composition and character of the food products which they purchase, and should be afforded protection against imposition because of the want of such knowledge. With respect, I am

Very truly yours,

S. M. CULLOM.

LETTER FROM GOVERNOR OGLESBY.

STATE OF ILLINOIS, EXECUTIVE OFFICE, }
SPRINGFIELD, December 7, 1885. }

R. P. MCGLINCY, Esq., *Elgin, Ill.*

DEAR SIR: Your communication of the 18th ult. and your telegram of the 23d ult., urgently requesting my attendance at the meeting of the Illinois Dairymen's Association, at Belvidere, December 10th, duly received.

Although I had written you, I think, once before, and perhaps stated to you that it would hardly be possible for me to attend the meeting of the Association this month, I still hoped that possibly I might be able to do so, and intended, if able, to be present. I find now that I ought to go to Champaign to attend the meeting of the Board of Trustees of the University of Illinois to-morrow. I feel there are important reasons why I should do so. From there I must return here to meet persons from different portions of the State upon the subject of appointing Trustees to build and manage the Soldiers' Home. These Trustees must be appointed by or before Saturday next.

You can see it would not under such circumstances be prudent for me to be away from the Capitol Thursday and Friday next. I, therefore, express my regret at not being able to attend the Association. I would have been gratified to have been present and listened to the discussions upon the several subjects bearing upon the great interest which the Association has in charge, as doubtless I would have received great benefit from each discussion and deliberation.

Very respectfully yours,

R. J. OGLESBY.

LETTER FROM PROFESSOR MORROW.

UNIVERSITY OF ILLINOIS, COLLEGE OF AGRICULTURE, }
CHAMPAIGN, ILL., December 7th, 1885. }

R. P. MCGLINCY, *Sec'y, etc.*

DEAR SIR: As explained to you, the meeting of our Board of Trustees at this time prevents my attendance at the meeting of the Association, nor do I find it practicable to send more than a brief paper—one suggestive rather than anything of a full discussion of the subject.

At this writing it seems not improbable the convention may be held in weather like that which so seriously interfered with attendance and comfort at Champaign last year. Nevertheless I hope there may be an interesting and profitable meeting. In an especial degree there seems to me two dangers—one an undue feeling of despondency, the other of hasty or imprudent action. I trust your efforts, as well as those of others long time connected with the dairy interest, may be given to prevent harm in either direction.

Yours very truly,

G. E. MORROW.

GATHERED CREAM WORK.

BY H. GILLIS, BIG FOOT, ILL.

Mr. President, Ladies and Gentlemen:—As I have been requested to write an article on gathered cream, I will do the best I can, but I want none of you to expect too much of me, as I am not accustomed to writing, nor am I accustomed to speaking or reading in public, this being my first attempt, and if I always feel as I do now, it will be my last. I do not see why this committee should have chosen me for such an important task as this. Although I make the gathered-cream business my business, I do not feel competent to take this subject up and explain it as it needs explaining. It is a very important subject, and it does not want to be misunderstood.

As almost every dairy paper that is published writes more on the subject of gathered cream and butter than I can, I think it is unnecessary for me to repeat what has been written and read time and again by every reader of the dairy papers. I could only say that every person employed by a creamery must be thorough, honest and industrious to make a success of the business. The only point that I could think of that is of importance, but has been well discussed, is to give the farmers some advice. Most farmers who sell cream to the creamery seem to think that it is for their interest to sell to the creamery all the gauges that he can. Now, they that figure this way ought to take the creamery in charge themselves and be responsible for all losses that may occur. If they would, I think some of them would be contented and give honest gauges. Every patron of a well-regulated creamery or cheese factory ought to feel that he is interested to a certain extent in the success of the creamery or factory.

Let us see what a creamery is worth to a community. A creamery at present is getting about 30 cents for its butter; the same butter made by the average farmer will bring, if well made, about 20 cents at a country store, in trade. Every person here knows that I have given the farmer the benefit of making good butter. Some of the stuff would be a loss to the storekeeper at 12 cents per pound. At these figures there is a gain to someone of 10 cents per pound, and it is far better for someone to have that than to throw it away, as it would only be thrown away by making poor butter.

I do not claim that the creamery and dairy butter is at so wide a range in price in summer as in winter, but it certainly will average 5 cents per pound the year around. Now, at 5 cents per pound, what does the creamery system save? In one creamery which I own and operate we have made from December 1, 1884, to December 1, 1885, 559,832 pounds of butter, and at 5 cents a pound means \$27,991.60 profit; and this is only a drop in the bucket to someone. The skimmer and the butter-maker and all the employees of the creamery get their share. The farmer gets all or more than he would have if he made his own butter, and here is \$27,991.60 going to persons for honest labor.

The skimmers and all employees should understand that their support comes from the creamery, and ought to feel that responsibility that they would if they were working a farm of their own, for this is their farm in one sense. The farmer ought to feel that the creamery does his work the same as his horse, and ought to be worthy of as good care.

Do not try to starve the creamery or give it short gauges; if you do, it will

certainly get too poor to do heavy labor. Just think of you farmers going to town with a poor old broken-down horse. Your creamery or factory is your horse, and you ought to take the same pride in it to keep it right. Do not starve it with short rations and then expect it to work. There have been but few creameries that have made a success of the business, and most of the cause is traceable directly to the ones that get the most benefits, and they are the farmers. They give the horse the feed and then take it away, or part of it, and then call it a feed. O, the short-sighted farmers!

I would like to say here that I am afraid that the gathered-cream business will be a hard business the coming summer, on account of this butterine having such an enormous foothold that no one can put away summer goods at any profit, and something ought to be done to protect summer dairying — especially on butter.

DISCUSSION.

MR. LUFKIN: I would like to ask you, on what system do you gather cream?

MR. GILLIS: We use the Cooley can, and measure on the can before skimming; measure by the gauge on the can, $2\frac{1}{4}$ inches.

MR. PATRICK: I would like to hear the gentlemen explain just the process he goes through; all about it.

MR. GILLIS: We gather our cream every day in the summer, and every other day in winter. Our cream is brought to the factory, and there is soured and got ready for the churn, and I do not know as the churning is any different than it is at other creameries.

MR. CURTIS: Is not your cream sometimes sour before you get it?

Answer. No, sir. We are never troubled with cream getting too sour.

Question. Have you any test by which you tell to what degree you would sour?

Answer. We mean to get a good, strong acid on it.

Question. Do you do your own skimming or let the drivers?

Answer. We let the drivers do the skimming when they do not get too shiftless.

Question. What do you do then?

Answer. Then we shake up the skimmer.

Question. How much is $2\frac{1}{4}$ inches; how many cubic inches?

Answer. I guess about 25.

Question. Is not that a large amount of cream?

Answer. Yes, but the more we get the more we pay.

MR. LOVEJOY JOHNSON: Is that a business way of doing, to take so much more than is necessary for a pound of butter, and yet give out to your patrons, that you are taking one pound?

Answer. We never do that. We take it by the inch. We are honest by our patrons. I tell them that in the summer time it will make more than a pound of butter. You cannot go out and tell them you are getting a pound of butter out of $2\frac{1}{4}$ inches of cream. The farmer can test it himself.

Question. The pound of butter has nothing to do with your price?

Answer. Not at all. The gauges are figured every day, and the butter is figured every day.

Question. And if it overruns, you make it up?

Answer. We make it up in the price to the patrons.

Question. Do you mean to say you figure up two or three different prices every month?

Answer. Yes, if it is necessary.

Question. I do not fool my patrons in that way!

Answer. You have no need to fool your patrons. Tell them honestly what you get.

Question. What I want to get at is this: Is or is not the system of buying cream by the inch a fraud? Should it not always be tested?

Answer. I would like to find a test that is correct, and I would buy the cream by test.

MR. CURTIS: Do you find your cream raised by the Cooley creamer pretty uniform?

Answer. Yes, we have good success with our butter.

Question. How does the quality compare with the factories that receive the whole milk?

Answer. Since June 1, we have been as high as 3,200 gauges a day, not less than 2,000 yet; and we have not had a tub of butter rejected in that time, at Elgin prices. We get the top of the market.

MR. DEXTER: It is well understood in most cream gathering factories, that I am acquainted with, that there is a very wide difference in the quantity of butter that $2\frac{1}{4}$ inches or any other given quantity will make. I think I have seen 100 men working on the cream-gathered plan during the past few years, and it was a recognized fact that so many cubic inches were supposed to make so many pounds of butter. During five years creamery men have discovered that it is possible to milk, say 50 cows, and divide the milk into two equal parts, and raise twice as much cream on one lot as on the other; and the creamery men found that by paying by bulk, they are simply robbing Peter to pay Paul, and I think they have concluded that there is no business system that does not include the test in some form.

MR. GILLIS: The greatest trouble with creamery men is, that they try to hire men too cheap to do the skimming. The man that is doing this skimming must be a judge. If this cream is not right, it is measured for what it is worth. If the cream is thick and heavy, and liable to overrun, the skimmer will allow it to him.

Question. Can he determine by the looks of the cream how much it will overrun?

Answer. He can determine just as well as he can by the test. I have run the test churn, and I never could get any satisfaction or make any money on it.

MR. BUELL: How long have you run a test churn?

Answer. More or less for the last year. I bought by test about two months in spring of 1883. It has been in the wagons all the time. We have not bought by it at all. We run that as an outside matter.

Question. I would like to know how many days you make tests?

Answer. Three hundred and sixty-five days in the year.

Question. How many tests in each day?

Answer. From ten to one hundred.

Question. How do you know that the results of your test churn were not correct.

Answer. By putting that in by itself and taking a test of the whole route, and figuring from it.

Question. What difference would you find between what your tests indicated, and what your load actually turned out?

Answer. Well, from 5 to 25 pounds.

Question. In that case, did you have any suspicion that this work on the test churn was not good?

Answer. I know it was not good always.

Question. Would you consider that a condemnation of the test churn, when you knew you did not do good work?

Answer. The trouble is in getting a competent driver. You have got to have just as good a man to take a test of this cream, as you have when he skims.

MR. BUELL: Suppose that you make a test, and on a 500-pound skim you find 10 pounds variation from the actual weight up of the butter, what would you think of this system then?

Answer. I should think it was about as near right as a man could get at it.

Question. Suppose that should occur right along for two or three weeks, would you call it a success?

Answer. I would call it a success, and follow it right up; but I could not do it. The experience you have had and I have had are different, and a man always wants to run his business to the best advantage for all concerned.

MR. BUELL: I regard the Cooley system as an admirable system, but I do not think that it is of the character that it makes cream from all kinds of milk churn out the same. At my creamery I do not think there has been 10 pounds variation between the actual yield of the cream, and what the test churn pointed out there should be. Take it, day after day, there is not over 2 or 3 per cent.

MR. JOHNSON: You have got good skimmers.

MR. BUELL: If I had not, I should just turn them off.

MR. CURTIS: Can you tell me about how much butter you get from 100 pounds of milk?

MR. GILLIS: The Cooley can will hold about 35 or 37 pounds of milk, and we usually get from $1\frac{1}{2}$ to $1\frac{3}{4}$ gauges from a can.

Question. And the gauge makes a pound on the average?

Answer. A gauge generally makes a trifle over a pound.

MR. BUELL: Of course, if this cream was all raised at the same temperature, and stood the same length of time, the solidity would be very much the same.

MR. GILLIS: Of course, the time of setting makes a difference in the value of the gauge.

THE CHAIRMAN: I want to say we have been doing something in that line, and our experience is that there is more cause of discrepancy in a lack of thorough mixture of the cream than from any other one point. The cream must be thoroughly mixed before you take your test, and you cannot mix it by stirring it. The cream must be poured from one vessel to another three times, at least; then you get the cream thoroughly mixed, and you take the test, and

our experience is that the work comes out very close. It is nothing unusual for a route of 150 gauges to come out with a variation of not more than a half a pound, and when there is a greater variation, we know that either the man that took the test did not mix the cream thoroughly or something is wrong. Our gatherers know just what we are doing, and we do not have any trouble at all. If you took from the top of the cream, you would get a percentage that would beat you to death, and if you took from the bottom, you would get a percentage that would beat your patron as bad.

MR. GILLIS: There is one trouble about the test. Your patron gets to understand that the thicker he gets his cream the better it is for him, and he saves his cream until it gets a little too thick and sour, and it hurts the quality of the butter.

MR. BUELL: I should regard it as unfortunate that the sentiments of this convention should be construed as unfavorable to the test plan, as one of the test plans—either the churn or the glass tube system—in my opinion, must be adopted at the present time, in order to do anything like justice to the patrons of the gathered cream creamery.

MR. CURTIS: The probability is Mr. Gillis has a set of patrons who have good cows, and know how to set their milk and all that.

MR. ANDREWS: We understand that the gatherers start in the morning and gather cream all day. Mr. Gillis has stated that the time of setting and the temperature regulated the butter value of the cream. Now, of course, it must be a fact that the cream of some of your patrons has stood from ten to twelve hours longer than others, so that the cream at one end of the route will yield more butter than at the other end of the route. Is that right?

MR. GILLIS: Yes; that is the fact, and the skimmer has to be the judge of that.

Question. How would he remedy that?

Answer. By adding to and taking from. It depends on the skimmer; he is a disinterested man. We make a settlement with our patrons then and there. If it is not satisfactory to our patrons we say "do not take it."

MR. BUELL: How is a man going to learn the quality of cream, so he can tell the comparative value of different samples of cream, without churning it?

MR. GILLIS: He can learn that from experience, so he can tell as well as you can with your test plan.

MR. BUELL: I submit he cannot know anything about it. He cannot come within 20 per cent. of it.

MR. BOYD: There is less variation in Mr. Gillis' way of raising cream than any other, and if the temperature of the water is alike with every portion, there is no variation in the cream.

MR. CURTIS: I suppose Mr. Boyd concedes the point that the time the milk is set has a little to do with the density of the cream?

MR. BOYD: By all means; it has considerable to do with it. If you set milk in Cooley cans, submerged twenty-four or thirty-six hours, it makes a difference of one-fourth pound on every one hundred pounds of milk.

MR. PATRICK: We would like to hear Mr. Buell explain his way of doing this business.

MR. BUELL: Mr. President, I shall, in a very few words, state the process

by which I conduct the business of running a creamery. We use what is commonly called the shot-gun can, for the most part; I do not know that any of my patrons have the Cooley cans, although I think they might as well, and I wish they all had, principally for the reason that it keeps the cream in a uniform condition, as to temperature and general quality. We measure our cream in a pail, an exact foot in diameter, and the test churns are adjusted to that unit. We keep a record, of course, of the measures in the pail a foot in diameter, calling an inch in depth the unit. We then, from the cream, take samples of every man's cream each day, which samples, in a given quantity are adjusted in quantity to the unit measure, of which I have already spoken. We churn these samples. I formerly used a glass jar churn, and the actual yield of butter the test quantity was what determined the value of the cream which had been measured in this unit measure. The record of the gross units is made by the driver. After the test is made, the man who runs the test churn makes a correction of the quantity of cream gathered on the opposite page of the book to get the actual yield in butter, and the patron is paid according to the yield in butter, as determined by this test. This test is run every day. We find it differs considerably from day to day, and the variations of different patrons' cream is considerable.

MR. CURTIS: Do you ever make experiments of taking two tests of the same cream?

Answer. Yes, frequently; and there will be but very slight variations—no more than would be explained by the accidents of the test.

MR. DEXTER: How much does this unit measure give you?

Answer. I think 113 inches.

MR. DEXTER: And would you say, in a general way, that 113 inches of cream would make a pound of butter, as determined by your repeated tests?

Answer. Yes; near enough for practical work as a basis. But we have cream that will run 120 to 150, and even as high as 160 or 170 per cent. I will remark that when we used to gather by the gauge plan, it took nearly one-fourth more bulk of cream to make a given quantity of butter than now, when they skim their milk, being aware that it is going to be bought by the test. The temptation then was to put in lots of milk to increase the gauge. Now, it is to save the milk for their own pigs.

Question. Is it not a fair inference that under the old form, without testing, there was the strongest possible temptation for a portion of your patrons to make a greater bulk of cream which would not give the proper amount of butter?

Answer. That is according to every man's experience, I guess.

MR. BOYD: I understand you to say that 113 cubic inches will make a pound of butter?

Answer. It is a good average standard.

MR. BOYD: Do you find any difference in summer and winter in that respect?

Answer. The same bulk of cream from fresh cows will yield butter better than the cream from strippers, and, as a rule, in summer there are more fresh cows than in winter. When it is very cold, the same bulk of cream does not yield as much as in summer. The difference depends on circumstances.

MR. BOYD: I find the difference is very considerable; sometimes as much as 25 per cent. And another thing, I know from my own experience that there is from 20 to 25 per cent. difference on the yield between the churning of sweet and sour cream.

Music—Belvidere Quartette.

THE FOOD QUESTION OF THE NEAR FUTURE.

BY T. D. CURTIS, SYRACUSE, N. Y.

I have hastily thrown together a few thoughts of a general character, which I will read for your consideration. I do not expect to cover the whole subject, even in a general way, but to give a few hints, which you may deem worthy of more careful thought, when more pressing subjects do not occupy your minds. The general hard times and low prices for dairy products are well calculated to set even the dullest minds to thinking. A combination of causes seems to have brought about the present state of affairs. To my mind, under-consumption instead of over-production is at the bottom of all our trouble. Lack of full employment for all our consuming population has resulted in lack of means with which to purchase, and hence has come pinching economy, with the result of leaving a large amount of labor products unconsumed, a stagnant market and low prices. What is the remedy? It is to in some way secure to labor a larger share of its own products, or, in other words, to pay it better wages, which will enable it to buy and consume more, and thus make a better market with better prices. But I cannot here discuss the question of how to do this; the remedy, in my opinion, lies deeper than the people are at present ready to go, and involves the readjustment of the relations between labor and capital, or laborers and capitalists. We are suffering much more from millionairism than from pauperism, and are likely to for some years to come. It costs the country a great deal more to support its millionaires than to support its paupers, while millionairism is a fearful breeder of pauperism. I merely drop the hint to stimulate reflection, and pass on to other points of perhaps more direct interest, but I shall only deal in generalities, not wishing to consume your time with details.

At the opening of the late Fat Stock Show, in Chicago, Governor Oglesby touched upon a point which has suggested itself to my mind for several years. With all our broad acres of public lands and our free homes, inviting immigration from all parts of the world and affording an outlet for at least a portion of our surplus labor, we are subjected periodically to a crisis in our business affairs, which not only brings suffering to many, but puzzles all our philosophy to account for. We find ourselves with plenty of the necessities and comforts of life in the country, with ready thousands in our midst who would consume them if they had the means to buy, and there is a general demand for foreign markets as an outlet for our surplus goods; but the people of other parts of the world are no better off than our own, they have no means with which to buy; the world over, we are all suffering apparently from the same general cause. It seems to me plain that capital has got too big a share, leaving the workers too little with which to buy, while capital at the same time refuses to give employment to the needy workers, so long as it has the unconsumed surplus on hand.

This is the condition in which we find ourselves now, but soon all our

available public lands will be turned over to the hands of private owners. Comparatively speaking, we have but little left now. The so-called arid region, which many suppose can and will be redeemed for agricultural purposes, bids fair to remain forever an arid region. There are some 450,000,000 acres of it, but it has been found by actual surveys that water can be secured for irrigating not to exceed 30,000,000 acres of it; the rest must be given over to its natural sterility. With our available lands already so nearly occupied, what sort of a future prospect does this open to us? In less than twenty-five years there will not be an acre of our public lands left that is fit for farming purposes. What shall we do with our rapidly increasing population after that? What shall we do with our surplus workers? How shall we feed, clothe and shelter the oncoming millions? their needs will be just as urgent, and their demands just as imperative as those of any now living.

When the next United States census is taken, it will show a population of 70,000,000 souls. The census of 1900 will register a population of over 90,000,000—this in less than fifteen years from now, and they must all be fed and clothed from the products of the soil. Here will open a future market surely—provided all the surplus wealth is not lodged in the hands of a few millionaires, and the needy millions are not left without the means of satisfying their needs, and without a chance to work and earn the means of purchasing; but they must and will eat, they must have clothing and shelter. The intelligence and civilization of the twentieth century will not deny these to them. The occupiers of the soil will have to divide, and the methods of cultivation will have to be improved. Every newcomer will nudge the one next to him to move along and make room. The waste places will have to be occupied and made available; there will be nothing to throw away.

Gentlemen, some of you will live to see this condition of affairs. The African question, the Indian question and the woman-suffrage question are trifles compared with the question that will quite soon enough confront you. There will no longer be a search for foreign markets. The question that now confronts some of the nations of Europe, "Where shall we get food with which to feed our millions?" will be upon you. Where can you go for a supply to make good any deficit? there are no more continents to conquer; the question and the answer will be in your own hands; right here will you have to work out among yourself the question of human destiny. Well will it be for you if you begin at once to build on an equitable and stable foundation.

You, who have got possession of the land will be the lucky ones, provided you know how to keep possession of it for yourselves and posterity. For there will follow something like a "survival of the fittest." Not only the best intellect but the best culture will find its way on the farm. As I have before intimated here in the West the farmer will not only have to understand his business in the present popular acceptance of the term, but be educated in all that pertains to his calling. His position will call for a broader range of knowledge and sounder judgment than that of any other occupation. Nothing like the present careless, slipshod and wasteful mode of farming will be tolerated by the community; the people, to say nothing of the individual farmer, will not be able to stand it. They must all draw their food and the material for their clothing etc., from the soil, and this will force its highest culture and its most economic management.

This may look like a distant period to some of you, but many now present will live to feel the pressure produced by the beginning of it. It is already dawning upon us, and the note of warning cannot be sounded too soon. The honest owners and tillers of the soil can begin none too soon to fit themselves for the most efficient cultivation of the soil, and to prepare their sons and daughters to fill the responsible places that will naturally fall to them.

Not only will the farmer be called upon to produce more per acre, but to produce it at less cost. Every farm will then be a special study (as it should now) that its capabilities may be developed to the highest point of production, and all the operations of the farm be run at the least possible expense. Everything of value, whether for feeding, fertilizing purposes or other uses, will have to be saved and utilized; nothing will be allowed to go to waste. At present the wastes on the farm from mismanagement, carelessness and lack of knowledge how to appropriate and use, would sustain another population equal to the one now living on the soil; this is stating the fact mildly. Men do not yet know the capabilities of the land for production. The United States alone, under proper cultivation, could feed and clothe the present population of the globe, and I verily believe that this could be done on the soil composing the valley of the Mississippi and its tributaries.

But what of the present? What can we, who now occupy this earth, do for our own and the benefit of the future? What ought we to do? We ought to do anything and everything we can to improve our condition mentally, morally and physically, and to render the soil more productive, and the world more beautiful and comfortable to live in. This is a very general answer and may not throw much light on many minds, which are at a loss just what to do in the present emergency. I will try to definitely name a few things, applicable to the immediate present, which can and ought to be done.

1st. We ought to skim over less surface, cultivate less acres, and do it more thoroughly. We ought to so cultivate the soil, as to make it more instead of less productive, saving all fertilizing materials and putting them on the soil where we do our work. We should thereby learn to get along with less acres, saving plowing, harrowing and traveling. We could harvest more product on less area. Our stock would have to forage over less territory to get their food, or we would travel over less to cut and gather it. Millions of dollars are wasted every year in extra and needless work, because we skim over so many acres.

2d. As fast as possible we should get our lands seeded to tame grasses. They are much more productive, more nutritious, and make better dairy goods and beef, than any wild grasses I have encountered. It is estimated in the different sections through which I have traveled, to take all the way from seven to forty acres of prairie to summer and fatten a steer. This is a great waste, which cannot much longer be endured. Wild pastures must and soon will disappear. Sown to tame grasses and properly fertilized, one to two acres will furnish the cattle food, that is now gathered from seven to forty acres and it will be of much better quality. It will endure the frosts better in the fall and afford nutritious food later in the season. It will also come on earlier in the spring, and the tame grasses will flourish, to the best of my observation, from Winnipeg to Southern Kansas, and I think to the Gulf. It is scarcely possible to estimate the value of the saving that will be effected by the introduction of

the tame grasses, among which corn is one, an annual that will continue to play an important part, as long as cattle raising and dairying are followed.

3d. Proper shelter for everything; all live stock of whatever character, and farm machinery. I am confident that the loss from the exposure of farm machinery throughout the West is much greater than the amount of your taxes for all purposes; town, county, State and national. There is a fearful waste in this direction. The waste from exposure of live stock to the inclemency of the weather is still greater; there is no way in estimating the loss resulting from this neglect. There are both extra consumption of food and loss of product. Good shelter and even a resort to artificial heating in cold weather would be true economy.

4th. We should stop the fearful waste of corn fodder and straw, which is everywhere prevalent throughout the West. Prof. Sanborn, Dean of the Missouri Agricultural College, estimates this waste in his State to be equal to the food required for the support of all the live stock. I do not doubt that he is correct in his estimate. The time will soon come when it will be found absolutely necessary to save this, and you will husband it even more carefully than it is now done in the East. These are worth something now as they are burned or plowed under to fertilize the soil, but not a tithe of their full value is secured.

5th. Much is yet to be learned on the feeding question. The farmers must learn how to balance their rations, and thus avoid waste. For illustration: if a farmer has an equivalent of one ton of clover hay and two tons of corn-stalks to each animal to be fed, it would be great waste and downright cruelty to begin and feed all clover hay as long as it lasted, and then feed all corn-stalks as long as they lasted. Neither food would be properly balanced; the animal would have to eat too much of the corn fodder to get nitrogenous or muscle-producing material enough, and too much clover hay to get carbonaceous or heat-producing material enough; but if the two were fed in conjunction—in the proportion of two pounds of corn fodder to one of clover hay, the animal would not only do much better, but a good deal less food would produce the same result. Little or nothing would be wasted. I do not say this is the exact proportion for a balanced ration, but give it as an illustration. We must learn the economy of feeding animals properly balanced rations. The same principle applies to human food; but we have a chance to select according to appetite, which is a very good guide, if by improper indulgence the appetite has not become vitiated; while the animal, it must be remembered, is afforded no such choice in winter. It must take whatever we give or go without.

I might go on with my enumeration, but will stop here, as my paper was designed to be only a short and suggestive one. I think you will agree with me, when you come to reflect a little, that we are nearing the end of our tether in the waste of carelessness and the extravagance of ignorance. We shall soon be crowding each other on this broad continent, and the question will be how to procure the necessities of life for all. The broad acres for settlement exhausted, we must resort to better cultivation and the practice of true economy. It will be for our immediate benefit to begin at once to work in this direction and our posterity will have occasion to thank us for any lesson of economy or wisdom which we may transmit to them.

Music—Ladies' Trio.

Music—Apollo Club.

Convention adjourned to meet at 9 o'clock a. m., December 11th, 1885.

Convention met pursuant to adjournment at nine o'clock a. m., Dec. 11th.

REPORT OF COMMITTEE ON DAIRY IMPLEMENTS.

Gentlemen :—Your committee to whom the subject of dairy implements was referred, beg leave to report that they have carefully examined the exhibits.

Many of the goods shown are so well known and so universally used that they need no extended notice.

Hanson's Butter Color has a national reputation, and Fargo, of Lake Mills, is but little behind in popularity. Fargo has on exhibition a set of books which every creamery man should have. His Ready Reckoner fills a long-felt want. His Refrigerator Vat looks practical and is coming into use. He also exhibits samples of parchment paper which is destined to supplant the old time cloth for covering butter in tubs.

R. F. Redell, of Chicago, General Agent, has samples of Hawley Salt, which is gaining favor among our best dairymen.

The Elgin Butter Co. show Embree's Rotary Butter Worker, which has many points of excellence. It is unequalled in durability and simplicity.

John Boyd, of Chicago, has a Circular Tank, which, in connection with his already popular Submerged Can, makes his system popular with creamery men.

The Rectangular Churn of Cornish & Curtis has already worked itself into favor with dairymen.

The Ross Ensilage Feed Cutter is a great favorite with the farmers in this section. Its use goes far toward reducing the cost of keeping stock.

The Michigan Milking Stool and Strainer Combined, is the latest, and it looks practical.

Andrews' cream tester, The Conqueror, attracts attention. It is an article of real value to both proprietor and patrons of creamery, and in our opinion goes far toward reducing cream gathering to a system, and solves the problem, "How to mete equal justice to all concerned."

The sample of Guernsey butter exhibited by I. J. Clapp, of Kenosha, Wis., smells well, tastes well, looks well, and may be considered as the key to solve the problem of adulteration of food.

Your committee would recommend that a greater effort be made at our coming meeting to secure a much larger exhibit of implements most necessary for dairy purposes.

LOVEJOY JOHNSON,

E. L. LAWRENCE,

E. E. CHESTER,

Committee.

Report adopted.

COMMITTEE ON NOMINATIONS.

To the Illinois State Dairymen's Association :

Your Committee on Nominations respectfully report the following for Directors during the ensuing year : H. B. Gurler, DeKalb : C. C. Buell, Rock Falls ;

J. L. Witbeck, Belvidere; E. E. Chester, Champaign; Ed. J. Oatman, Dundee;
W. R. Hostetter, Mt. Carroll; L. M. Potter, La Fox.

R. LESPINASSE,
W. R. HOSTETTER,
D. C. WOLVERTON,
Committee.

Report adopted.

REPORT OF COMMITTEE ON ADDRESS OF THE PRESIDENT.

To the State Dairymen's Association of Illinois:

Your Committee on the Address of the President would respectfully report:

1st. Calling attention to the encouraging view presenting the comparative profit of dairying and the many ways in which we can and should strive to improve upon present methods, keeping squarely into line and holding a firm grip.

2d. The action of the State Board of Agriculture of Illinois, in deciding the case of the butterine men at the dairy show in an *ex parte* way, shows grave error of judgment, and those members whose constituencies are engaged in dairying as a leading industry are specially to be censured for their action. The position assumed by these gentlemen is one that cannot be either excused or explained away, and it particularly behooves their constituents to use every honorable endeavor, to the effect that their successors on the Board be true and faithful representatives of the paramount interests of these districts.

3d. Constant and intelligent agitation of the merits and demerits of the case of

GENUINE DAIRY PRODUCTS,
VS.
BUTTERINE, OLEOMARGARINE, ET AL.,

sold as, and under the guise of dairy products, should be kept up and no stone left unturned to so instruct the public in every school district of the State, that public opinion may require and demand imperatively and absolutely, from our next State Legislature, a law upon this subject which shall do justice to the dairymen of Illinois.

4th. The proposition to organize creamerymen, dairymen, dealers in genuine dairy products, and farmers all over the State, to carry on, ceaselessly and actively, a rapid and energetic warfare between pure and adulterated dairy products, cannot be too strongly commended by your committee, and the necessity and wisdom of such a move, as well as the appropriateness and timely occasion, will strike forcibly every member of the Association. Now is the accepted time—right is on our side, and confident in the honor and justice of our cause, we should so gather our strength and unite our forces, that the insidious parasites upon our industry may be forever laid at rest.

5th. Your committee would recommend that every creameryman, butter and cheese maker, and private dairyman in the State of Illinois, be requested and solicited to become a member of this Association at once; and further that each creamery be selected as the center of a district to engage the attention of every patron of the creamery, and all farmers within its radius, to the important question of adulteration of dairy products, and that for the purpose special printed matter be prepared and furnished from time to time by this

Association, for distribution by the creameries working in harmony and conjunction with this Association.

6th. This committee further recommends that a special request be addressed to the Dairymen's State Associations of Iowa, Nebraska, Wisconsin, Minnesota and Mississippi Valley Associations, for the appointment of a special interstate committee on organization, and that our Board of Directors appoint from their own number a special committee to meet and confer with the committees of these States, as well as with the Elgin Board of Trade, the Produce Exchange of Chicago, the Buttermen's Protective Association of St. Louis, and all Societies having for their object and purpose the advancement of dairy interests.

Eternal vigilance is the price of liberty—and we must lend our every effort to the perfection of a thorough and complete organization.

Proper, reasonable, and constitutional legislation must first be secured, and the machinery for the enforcement of the laws enacted will then become a question of moment, easily solved if every dairyman is true to his interests—true to himself.

C. C. BUELL,
J. L. WITBECK,
R. LESPINASSE,

Committee.

Report adopted.

ON STATE BOARD OF AGRICULTURE.

The committee appointed to formulate the sentiments of the Association in reference to the action of the State Board of Agriculture in receiving for exhibition bogus butter and butterine, so called, would submit the following resolutions and recommend their adoption :

Resolved, That the action of the State Board of Agriculture in relation to the exhibition of bogus butter or butterine, so called, in connection with the Fat Stock and Dairy Fair Show, is received by this Association with mortification and deep regret.

Resolved, That this Association, by its past recorded action, and by the many able papers on the adulteration of human food which it has published to the world, both in former years and later, in relation to the manufacture and sale of bogus butter or butterine, so called, as a dairy product, has shown itself an intelligent, earnest and consistent opponent of all fraudulent and deceptive adulterations of human food, and has acted in the interest of the public health and of honest trade and industry.

Resolved, That the fraudulent and dishonest practices which have hitherto so largely accompanied and characterized nearly all dealings in bogus butter, so called, the deceptive acts and accompaniments which are essential to success in imposing this fraud upon the public, including the use of false designations and names, originating with true butter and legitimately belonging alone to it; also, including the forcing of bogus butter upon the public for consumption under circumstances in which the public is deceived, and is made powerless to resist, are sufficient reasons both for thorough and efficient legislation to correct the evils complained of, and to enlist the earnest effort of every organization connected with the operations of trade and industry to correct the evils threatening to trade, commerce, industry and the general good.

Resolved, That we accept in good faith and belief from individual members of the State Board of Agriculture their protestations of concurrence with the views and efforts of this Association in the interest of honest butter and honest food, and we await with anxiety such official action on the part of the State Board of Agriculture as will place the high and beneficent aims of that Board and those of this Association in complete and practical harmony, and will enable them and us to co-operate hereafter, as heretofore, in advancing the great and fundamental interests of this country.

C. C. BUELL,

W. H. HINTZE.

Committee.

Report adopted.

It was moved, and motion carried, that a copy of the report be sent to the State Board of Agriculture.

PROFIT AND LOSS IN DAIRYING.

BY W. R. HOSTETTER, MT. CARROLL, ILLINOIS.

In considering this question I shall not confine myself entirely to its financial view. There is a profit and loss that cannot always be counted in dollars and cents. I think we are all apt to estimate things by their money value, instead of the *good* they do. Every occupation and calling should bring its reward both in dollars and in the satisfaction of a use performed. The majority of people think they do not receive enough of money for the labor they do, or risk they run. I am rather inclined to the opinion that men gain wealth according to the ability which they have to *manage* their business. The road that leads to wealth for the dairyman is not over a *level* track upon which you can go at a two-forty trot. There are hills to climb, and streams to cross where we must have bridges, and good strong ones, or we will break through and be swamped. I shall endeavor to point out some of the things in dairying which I think lead to success, and shall call them profit; others which lead to failure, and shall call them loss.

The first, and one of the most important things a dairyman must have, if he wants the balance to be on the profit side, is good common sense—and plenty of it. He must be able to decide for himself what course to pursue. Selling milk and cream, making cheese, and making butter, are each separate branches of dairying. One will pay when the other will not, owing to the circumstances under which the dairyman is working. My experience in dairying has been altogether in making butter, and my remarks will be on that branch of dairying. The items that go on the profit side are butter, skim milk, and buttermilk, calves and manure. On the opposite side are feed, labor, and dozens of small items that cut down the profits at almost every corner. The gross receipts for butter will vary considerable on account of the variation in the *price* of butter from year to year. This will be partly offset by the variation in the price of feed; but it does not always follow that when butter is low that feed is low. The feed in most dairies is raised on the farm, so that the actual cost (the labor of raising it), will vary but little on account of the small variation in the cost of farm labor. But the actual or market value will sometimes vary 50 per cent. On counting the cost of feed it should be put at its cash value on the farm.

In making butter skim milk is quite an item of income when fed to pigs or calves. My experience is that it is not of much value for making veal, especially from Jersey calves, and I have not attempted it for several years. I now raise only heifer calves, disposing of all bulls when a few days old for what they will bring. I consider that the skim milk from two cows will raise one calf, or that the skim milk and droppings from one cow, when corn is fed, will raise one pig. Some of our dairymen claim there is a profit in making skim milk cheese. There may be, but I do not believe it. Skim cheese is actually killing the market for all kinds of cheese. No retailer will admit that he is selling skim cheese, and you do not know what you have until you get it home and commence to eat it; after it has been in your stomach an hour or two you realize that you have something, and think it is a brick-bat. After you go to bed and try to rest your weary limbs you know what is the matter, and as you lie there you vow that you will sell that grocer all of your rotten eggs and rancid lard; that you will make him a present of your ten-year-old turkey gobbler, and you swear by the bed post never to buy any more cheese.

I think it is more difficult to put a money value on the manure pile than any other item on the profit side. It has no particular market value—at least there is none bought nor sold in our section of the country. Our farmers consider it too valuable to sell. The value of the manure on a piece of land can not be determined by simply the increased amount of grain or hay raised the first or second year after it is put on; the benefit may last five or ten years. If a good coating of manure will keep our land from deteriorating for five or six years, it is a large item on the profit side. It is said of Henry Ward Beecher that he once bought a pig for \$1, and 40 bushels of corn for \$20; he fed all the corn to the pig and then sold it for twelve dollars. He said he did not expect to make on the corn, he was making on the pig, and he did splendidly. When we have a bad year and it takes all of our cash receipts to pay for the feed and labor for our cows, our agricultural writers tell us we ought not to feel bad, we have the manure. That may be, but the manure pile is a "mighty" poor thing to live on, and most of us *must* have something more. It will not buy goods, and even the editor declines to take it on subscription for his paper.

Another item on the profit side of a well conducted dairy is that it teaches those engaged in it neatness. No dirty, slovenly person can make fine butter. The habit of neatness will grow on the dairyman, and gradually get outside of the dairy house and show itself in his house and barns; his hedges will be trimmed and fence corners free from weeds; his lawn will be mowed and everything will have a thrifty, tidy appearance.

Everything the dairyman may do to promote the welfare of his family may be counted on the profit side. Money invested in papers and books is *well* invested and will yield a profit in dollars. By papers and books I do not mean simply those relating to our business, they are as necessary to us as feed is to our cows. We must have other reading matter than business. We must have our local and city papers, our religious and literary magazines, and just as many good books as our means will allow us to purchase. There is no reason why a farmer, if he tries to educate himself and family, should not be the equal mentally and socially of *any* business man. Do not talk and read about cows and butter and pigs and corn from the time you get up in the morning until you

go to bed at night. Give yourself and family a rest—at least at meal time and during the evening, and let them know that there is something in the world outside of your little farm. If you do not, when your children are old enough to realize that they know little or nothing of the world, they will go away to see it, and you will wonder why they were not satisfied at home.

We hear a great deal lately about winter dairying, and you would think, to hear what some writers say, that we must all stop making butter in the winter. If you have good warm stables and plenty of feed, and you do not have to keep your milk behind the kitchen stove, you may make a profit on winter butter. If you expect your cows to feed on corn-stalks and a straw-stack, with the stars over their heads and a snow drift under their feet, and that the women will do the milking, while you are thawing out the half frozen calves behind the kitchen stove, or skinning those that jack frost and the hogs claimed as their legitimate share of the profits; or if you intend to keep your milk in the cellar with rotten cabbage and potatoes, or worse still, behind the stove when you cook your sauer-kraut and cod-fish; I say if you expect to make anything at winter dairying under such circumstances, you had better not attempt it; you can make more shooting rabbits at 25 cents a dozen. I do not think that dairying need be confined to either winter or summer. The model dairy will commence making butter the first day of January and keep it up until the last day of December. Divide the work up a little; do this especially if the women of the house have any of the dairy work to do. Let me say right here, that it is a disgrace to us that we allow our wives to do so much of the dairy work. We say that *we* have not time; that if we do the dairy work that we must neglect some of the farm work. It is the same with our wives—some of their duties must be neglected. No doubt there are thousands of dairy women that can "beat us all to pieces" making fine butter. I wish more of them would attend our conventions, and tell us how it is done. But they have not the time to attend conventions; the dairy work *cannot* be neglected, and the children *must* be attended to. The husbands cannot do the dairy work, and do not know how to attend to the children. So the husband—the representative dairyman—goes to the convention. He puts the money for two hundred pounds of that delicious butter into his pocket and starts. He is not satisfied with anything less than a \$5.00 hotel and 25 cent cigars. He carries a gold-headed cane, wears broadcloth clothes and a stove-pipe hat. Then he tells the convention how *he* makes butter. "That the milk utensils must be first washed in cold water; then in warm water and soap; then in warm water that fizzes, and then in cold water, and your butter will bring 50 cents per pound." (The above statement was recently seen by me in one of our leading agricultural papers.) He says that your cows must be curried off every morning and fed every evening. He says that the convention is such a glorious thing that he hates to go home, but as his two hundred pounds of butter are used up, he does go home, and he tells his wife what a *grand* thing these conventions are, and what an *immense* and glorious business the butter business is; that there are *millions* invested in it. And he tells her how they make butter at the convention, and how *she ought* to make butter. Then he sits down to a delicious dinner, and, as he disposes of one good thing after another, and notices that his children are all clean and dressed in their best in honor of his return, his heart

begins to soften, and he tells his poor tired wife that he saw some beautiful green glass vases, and that he would have bought them for her if he had not been afraid of breaking them.

In pointing out where there is a profit, I have necessarily shown where there is a loss in our business. But there are so many, that it would be impossible for me to mention them all. First, I think it is a great loss not to keep accurate accounts of our receipts and expenditures. How can we close a leak if we do not know where it is? We may be paying too much for feed and not enough for labor, or the opposite. Dairying is not reduced to a science like surgery. A professor can tell his pupil just how to amputate a limb, and under what circumstances it can and can not be done. We cannot lay down a rule in our business that will apply to every section of country. How much more difficult to have one to apply to every farm! The kind of crops that can be raised on adjoining farms is at times very difficult. We can only have general rules to go by; we must adapt them to our circumstances. We lose by not having the best animals in our herds and the best implements our means will permit us to buy. If we are raising our calves, and have twenty or thirty cows, we had better pay \$200.00 or \$300.00 for a good bull than to use a poor one, although he may not cost us anything.

It would be *folly* for a man with two or three cows to invest several hundred dollars in a cream separator; it would be equally foolish for a man with fifty or sixty cows to set his milk in the old-fashioned one-gallon stone crocks. The progressive dairyman must be up with the times, and use everything that will lessen the cost of production and improve the quality of his products. Our *greatest* loss in the dairy is caused by the manufacture of imitation butter. This can be reduced if we can prevent its fraudulent sale. It is now reported that dairymen *themselves* are adulterating their butter. If this is a fact, we should find out who they are and punish them to the full extent of the law.

We *lose* by not knowing what cows yield a profit and what ones consume more feed than their milk is worth. We need some method of telling quickly, accurately and cheaply the butter and cheese value of a small quantity of milk. Money can be made at almost any business, if a person will work hard enough, and has the right kind of energy and back-bone so that he will not give way at every little failure. But money should not be our greatest aim. We should consider first—do we *give* a fair value for the money we receive? Next, are we going to use that money so it will benefit our family, our friends, or our country? Every dollar we earn, if so applied that it will help one iota in the progress of civilization; if it will help as much as one drop compared with the ocean, to raise the mental and moral standard of our fellow beings, it has not been earned in vain.

It is not my intent to point out how we, as a class, may use our dollars. We are all created free to choose between right and wrong, and must be governed by the dictates of our own conscience.

By the world our calling is generally considered an humble one. If this is true, it is our duty to ennoble it. And let us remember that no honest labor is degrading; that man can degrade himself and his labor, but that labor *never* degraded the man. In closing, I will say that in our occupation, like all others, honesty, industry, economy, a true sense of justice and true generosity, can

always be counted on the profit side, while shiftlessness, avarice, deceit, pure meanness and fraud, will eventually lead to loss.

DISCUSSION.

PROF. HENRY: I understood you to say that you have grade Jerseys?

Answer. Yes.

Question. About how much butter can you get in a year, as your herd runs, per cow?

Answer. I cannot give the exact figures. I can give you the gross receipts. From the first of January up to the present time, I have had twenty-three cows that have dropped calves, and all of them, except three or four, have dropped their first calf. The receipts of butter up to the first day of December, were \$650.00 from twenty-three head, that dropped calves during the time, just as a herd would run, some fresh probably last fall, and some just lately. It was really a herd of heifers.

Question. About how much was the butter sold for?

Answer. I did not sell any of it for less than 20 cents, except one or two sales at 17 cents. Most of it was 20 cents for the summer months. Since then it has been sold on the market. Of course, this was not an average herd, and they have not been milked an equal length of time.

MR. STOCKWELL: I understood this gentleman to say, in his paper, that the greatest loss to the dairy was attributed to butterine. Now, is it not a fact that the poor dairy butter of this country costs the dairymen of the country more than butterine does? It is my opinion that it is a damage ten to one to what butterine is.

THE CHAIRMAN: This poor butter costs a loss to the producer of it. Butterine costs a loss to the men that make fine goods, and we are all hurt by it.

MR. STOCKWELL: But does not that butterine compete more with poor butter, than with the fine creamery butter?

THE SECRETARY: No, Sir.

MR. ALLEN: Let me ask, Mr. Stockwell, did you attend the Fat Stock Show?

Answer. No, Sir.

MR. ALLEN: Well, sir, I think if you had attended that, your views would be different. I spent ten days there with my butter, and I made up my mind that the butterine folks have got the field. And why? Because they present an article that you can put upon the counter with the best butter, and one-half of the consumers in this country cannot tell the difference, and there is 10 cents a pound difference in the price and they are certainly going to take the butterine, and my butter will be passed by. That is the condition I find the market in. It is my opinion that seven out of every ten people in the city of Chicago, are to-day eating butterine in the place of butter, and that they are satisfied with it, and that there is nothing to do with these butterine people but to kill the prejudices of the people, and that they are sure to do, because they cannot tell the difference between a good butter and a poor one, and they have got the market to-day, and they are going to hold it, and you cannot make any laws in this State in my opinion; you cannot get the honest people of this State of Illinois to make a law that will reach them. The profits go directly into the pockets of this great

man, and when you get down to the consumer, it goes into his pocket. Somebody says we must take the bull by the horns. Well, now, gentlemen, we have got not only the bull to take by the horns, but we have got a pig, and he is greased, and he is a bad fellow to handle. Now, the question is whether the only way to handle this thing, is not for the dairymen and creamery men to associate together, and then make the butterine themselves. Let them buy the lard and furnish the people if they want it, with the article, and the best of it that they can make and divide the profits among the farmers and thus hold the fort. That is the only practical way to do it. You have got to come to that, either first or last; there is no possible way to fight it, because we cannot make butter eight months in the year at a loss, where we only get a profit four months in the year. In my opinion there are only two channels for us—one is to make the best dairy or creamery butter for the higher class of trade, and the best butterine for the lower class of trade, and we have got the whole thing in our hands, if we only take possession and not let Armour get all the benefits.

MR. LESPINASSE: I am quite sure Mr. President, that Mr. Allen, in his statement, has started from a wrong starting point in assuming that people want an article that is made in imitation of the dairy products of the country. Now, I know absolutely that that is not true; the people are not satisfied with it, and they are trying every means in their power to prevent the imposition that is being practised upon them daily at every street corner and green grocery in the country. It seems to me that a correction of stealing by still greater stealing, a correction of counterfeiting by still greater counterfeiting, a correction of the sale of a glass diamond, by destroying all genuine goods, is rather a queer assumption, and if that policy was followed in all the branches of our social and political economy, it would be but a short time before we would have destroyed everything that our fathers and mothers taught us, and their fathers and mothers before them.

MR. T. D. CURTIS: I understood when I was in Chicago, and from some observation, that butterine is never sold as butterine anywhere to the consumer, that it is quite customary for the retailer to keep a quantity of rather inferior butter and exhibit it to his customers, and by the side of it some of this butterine or oleomargarine. He shows them first the bad butter and gradually leads them along to the butterine, which does not have a rank smell, and they conclude they will take that, supposing it to be a superior quality of butter and not butterine, by any means.

WORKING AND SALTING BUTTER.

BY T. D. CURTIS, SYRACUSE, NEW YORK.

It is not many years since that dairymen thought it necessary to gather their butter into a solid mass in the churn, and then take it out and work and wash it as long as the water looked milky. A few years ago some one started the idea of stopping the churn when the butter had gathered into lumps the size of beech nuts or of kernels of corn. In this condition it was washed in the churn or bowl, with but little working until the salt was applied. This was an improvement. But now the more advanced butter makers stop the churn as soon as the butter appears in granules of the size of wheat kernels, and even as small as mustard seed.

A very successful butter maker in Minnesota told me he was not able to get the butter to take the salt properly, or as evenly as he wanted it to, if he allowed the granules to become larger than mustard seed. If larger than this, he said a magnifying glass would show white spots of unsalted butter. His practice is—and it is the practice of most good butter makers—to draw off the buttermilk immediately on stopping the churn, and then to pour into the churn enough water, at 55 degrees or below, to float the butter, when the churn is gently agitated a few moments, and the water drawn off. The second washing, done in the same way, is with cold brine, made of the purest salt that can be obtained. How strong this brine should be is a question for debate. Prof. L. B. Arnold says “a weak brine” is best; but this is very indefinite. I think few, if any, use a saturated brine. Some say they “throw in a few handfuls of salt”—more indefinite still. Sometimes I have advised the use of a pound of salt to twenty pounds of water, which makes an excellent liquid to soak rennets in for cheese making. This, however, may not be strong enough. A saturated brine, I understand, hardens the caseous and albuminous matter, while a weaker brine of the right strength softens the caseous matter and makes a soft coagulum of the albumen which is soluble in cold water. In such a condition, the caseous matter and coagulated albumen are readily washed out with cold water used in subsequent washings. I would like to learn just how strong the brine should be to prove the most efficacious. Perhaps some of the scientific gentlemen present can give the desired information.

When butter is treated in the way I have described, no working at all is required. It is only necessary to repeat the washings until the water runs clear. Nothing like gathering or packing the butter should be done. If the water is cold enough, there will be no adhesion of the granules. They will remain distinct, and can be stirred around in the water, floating them with perfect ease; and when the water is all drawn off, they can be ladled out of the churn and placed on the table or butter-worker without packing them in the least. In this condition they are prepared to receive the salt; but the butter should be allowed to stand, either in the churn or on the table, until all the water has drained out that will. In a half hour or an hour the butter, piled in a mass, will drain sufficiently dry. It is not desirable to get all the water out. Enough should be left in the butter to dissolve the salt and make sufficient brine to penetrate the whole mass.

Many suppose that when it comes to salting the butter, it should be pressed into a compact form, spread out in a thin sheet, and have the salt sprinkled over it. Then I have seen this sheet rolled up into a cylinder, which was then flattened out into a thin sheet again, more salt sprinkled on, and again rolled into a solid cylinder. After the salt is all rolled in, by this process, the lever is brought to bear and the butter worked until the salt is supposed to be evenly incorporated. Then many set the butter aside, for twelve or twenty-four hours, when it is brought out and again worked, to get out any white streaks that may appear.

Now, this may be a good way, if the salt is to be “worked in.” But there is a more excellent method. It is to *stir* the salt into the butter, while the latter is still in the granular form. Years ago, I heard Hon. Harris Lewis say that he sprinkled the salt on his granulated butter, and carefully stirred it in with a

ladle or paddle. He was on the right track. But he used to set his butter away and afterward give it a "second working," as it is called. In this, I think, he was wrong. I should not be surprised if he is now omitting this second operation. Most of the leading dairymen of the West are omitting the "second working," and packing their butter directly into the tub, thus saving labor, avoiding injury to what is called the "grain" of the butter, and saving salt by retaining in the butter all that is put in. With either a first or second working, it is possible to work out a large amount of the brine, thus leaving the butter too fresh, unless an extra amount of salt is put in.

To avoid this waste, some dairymen, supposing the salt must be "worked in," have resorted to coarse-grained salt, after the manner of the cheese makers who salt their curd before the surplus whey is drained out. In this the butter makers make a very great mistake, in two particulars. First, in working their butter with undissolved salt in it, they do great injury to the texture, which is also an injury to the flavor and to the keeping quality of the butter. So far as the texture is concerned, they might as well work in so much sand. The undissolved salt scours the butter and cuts the "grain," giving the butter a greasy, shiny appearance which is as offensive to the experienced eye as the loss of flavor is to the educated palate. It appears to liberate the fine flavoring oils, which unite with the oxygen or other elements of the atmosphere, forming unpalatable compounds, or else they become the nidus of some of the numerous varieties of microscopic spores that always float in the atmosphere, these developing into minute organisms that are unsavory. But whatever the process that follows, I believe there is no divided opinion as to the overworking causing injury to butter.

The second point of injury arising from using coarse salt is the leaving of undissolved salt in the butter to make it gritty. The harder the salt is the worse. Unless a good deal of water is left in the butter and the butter is allowed to stand a good while and is worked a good deal, to bring the grains of salt in contact with the water, it is impossible to not have gritty butter where salt that is coarse or hard, or both, is used. All ground salts, and those made very dry by exposure to a high temperature—that is, have the water of crystallization expelled—are objectionable on this account. They dissolve too slowly, and the sharp angles of the crystals made by grinding cut the "grain" of the butter very rapidly.

I am led to these remarks by my past season's observations at the fairs of the West and Northwest. It was a universal complaint among the judges that the butter was overworked. On inquiry, I found that Western butter-makers were quite in the habit of using coarse salt, under the mistaken notion, which had been instilled into their minds by salt agents, that fine salt which dissolved freely would incur waste—and, with their idea of "working in" the salt in an undissolved state, there was some force to this argument. But the best butter that I saw anywhere was that of Mr. Leslie, of Springfield, Minnesota, which won the Higgin prize silver pitcher. This butter was pronounced by the judges the best butter on exhibition at the Minnesota State Fair. It was declared perfect in texture, and scored 19 out of a possible 20 points on flavor—the chairman remarking, "We must be careful how we mark *anything* perfect." This butter was, of course, salted with Higgin's "Eureka" salt. The salting was

done in the churn, by stirring the salt in without the least bit of working. The butter was taken from the churn in the granular form—Mr. Leslie said as fine as mustard seed—and put directly into the package, where it was for the first time pressed into a solid mass. All his butter was treated in this way. But, of course, without a fine, even-grained, freely-dissolving salt, this would be impossible.

With a large dairy or a factory, this may seem to some to involve a good deal of difficulty and labor. On the contrary, it saves both. Mr. Moran, of Chicago, who runs a number of creameries in Iowa, told me he always salts his butter without working, and packs it as soon as salted. He washes in brine and in water at 48 degrees, I think he told me, takes the butter out of the churn on to an inclined butter table, lets it properly drain, then sprinkles on the salt and rakes it in with a common hay-rake. He finds this the most convenient and effective tool he can get. He begins on the edge and carefully hauls a few granules toward him a little, then takes a few more, and so on gently until the whole is gone over with. It is next raked crosswise, and the raking is continued until the salt is all dissolved. Of course, the moment the salt becomes brine, it settles all through the mass and covers every granule. There is no other way of possibly getting the salt so evenly distributed through the butter. It is then ready for packing. But Mr. Moran has been in the habit of first pressing the butter together into a solid mass. When I told him of Mr. Leslie's practice, he said he thought the idea a good one, and that he would try packing the granulated butter directly into the tub.

But, as already indicated, this method of salting and packing butter will not do with all kinds of salt; yet it is the only method that leaves the texture perfect and the butter in its best condition for all purposes. The salt should have an even, natural grain, be perfectly and freely soluble, and free from all deleterious ingredients. Undoubtedly "salt is salt" the world over; but not all salt has the same impurities, nor in the same proportions, nor is all salt in the same condition. Hence there is wide difference in the different brands of salt—wider than most people suppose, when we come right down to the manufacture of the best possible article of butter.

Dairy salt should be free from mechanical impurities—such as black specks, of which I have heard much complaint from users of American salt and panscales, or flakes of sulphate of lime, which are found in some of the English brands—in one, at least, often in great abundance. These get in from impurities settling on the bottom and sides of the kettles or pans, in boiling, and then scaling off in thin flakes. They are claimed by some to be perfectly harmless. This might be if they remained in the scale form, when they would appear as hard lumps in dairy goods—a thing not to be desired, to say the least; but when they decompose, setting the sulphur and lime free, to remain so or to unite with other elements and form other compounds, they are far from harmless. If ground up with the salt, so they do not appear to the eye, as is the case where the grain is secured by grinding, they are no better. This does not get rid of them. On the contrary, it puts them into a more soluble form, so they sooner dissolve to injure the flavor of the product.

As to other specks and dirt in salt, they may come from careless manufacture or careless handling. I have seen the best salt spoiled by lazy handling—

tumbling the sacks through the dust and dirt until they penetrated the material of the sack and mixed with the salt—most on the surface, of course, but rendering it impossible to get the salt out of the sacks free from fine dirt. One instance was brought to my knowledge where a man completely peppered a sack of salt with black specks by carrying it home in a wagon that had been used for hauling coal. I have no doubt that many spoil salt by careless handling, and then honestly suppose that dirty salt had been imposed upon them. Dealers are often guilty in this respect; and I have seen salt kept by them in places hardly fit for pig pens. In this way, salt gets wet and then hardens and becomes inconvenient to use, if no other injury follows.

In one instance that now comes to my mind, salt was not only kept in a dirty, damp cellar, but some of it laid directly under an outside window in which was a shute for unloading, and every time it rained the water poured in through this shute and ran over the sacks of salt. The sacks were discolored and mouldy, and some of them so stuck together that it was difficult to separate them without spoiling them by tearing. It is needless to say that the salt was very much injured, not to say spoiled.

Again, salt kept in such a place, or in proximity to kerosene, codfish, or other bad smelling articles, or brought in contact with these in transportation, is often spoiled by absorbing these foul or disagreeable odors. Hence the complaint about fishy and other smells which we sometimes hear. Salt is about as sensitive to odors as any of the fats are. The tenacity with which it holds them is illustrated by the bottle of smelling salts which is often found in the pocket of a lady. In this case, the salt is used to hold the pungent odor which the bottle gives out when uncorked. Salt will absorb and retain any other odors just as readily. Hence, too much pains cannot be taken to keep salt in a clean, sweet place, and to transport it in a cleanly manner. It should be handled and stored in at least as cleanly a manner as flour, which is no more liable to injury from improper handling and storing.

Sometimes we hear wooden packages recommended as the only fit ones for keeping salt. Undoubtedly, if salt must be subjected to villainous usages, wood is the only protection. But barrels are too expensive, and of little or no use when the salt is out. The dairyman does not want to pay 25 to 50 cents for a barrel that is of no real value to him when the salt is used. A sack has real value, and is of use in many ways. As by buying salt he gets the sacks at the cost of manufacture, it is an object to buy bags in this way, which may be of use in handling grain, or may be ripped open and used for toweling or other domestic purposes. I find dairymen have decided preferences for strong linen sacks.

The preposterous claim has been set up that the use of a certain brand of salt not only improves the quality of the butter but adds to its weight. It is impossible for both claims to be true. In the first place, salt does not add to the quality of the butter. If pure, the salt simply preserves whatever quality the butter has and adds to it the sweet flavor of pure salt. If weight is added to the butter above that added by a freely-dissolving salt when the butter is sufficiently freed from water before salting, it is by the fraudulent retention of undissolved salt in the butter, thereby making it gritty and depreciating the market value of it two to five cents a pound. He is very short-sighted, there-

fore, who seeks to add to the weight of his butter by using hard, coarse-grained salt—for he depreciates its value ten times as much as he adds to its weight. In saying this, I ought to consider the question of honesty or dishonesty which is involved. But the loss is so much greater than the gain that it does not favor the practice of dishonesty.

Naturally, the best salt is the high-priced, each manufacturer knowing the value of his own product—the labor and care bestowed in its manufacture—and putting a market price on it accordingly. There are notable exceptions to this, however. The manufacturer who understands his business has an advantage over the one who lacks understanding. For illustration; Mr. Thomas Higgin, of Liverpool, England, by his inventive genius and superior skill, not only improved the quality of English dairy salt, but materially reduced the price of it to the American dairymen, who find the best foreign salt indispensable. But the cost of even the highest-priced salt is but a trifle—less than a mill a pound to salt butter with it, and a correspondingly small cost per pound for cheese. Three to five cents cover the entire cost of salting a 50-pound package of butter with the best salt in the market. Hence, it will poorly pay the dairyman to save on salt by using a cheap article which must sooner or later depreciate the value of his butter, when by taking the higher-priced he is sure of getting the best and of getting the best price for his goods when put upon the market. “Penny wise and pound foolish” never made any man rich or happy. I have no doubt that millions of dollars are lost to the dairymen of the country every year by the use of poor salt.

Question. Is it possible to salt butter in brine?

Answer. Yes; but there is this trouble, as a rule you will not get it salty enough with brine, and that is because there is a certain amount of water already in the butter, and that water freshens the brine, and my experience is that it makes the butter a little fresher than the popular taste desires.

Question. How does washing in brine affect the weight of the butter?

Answer. The effect of the brine is upon the caseous and albuminous matter, to take them out of your butter. The more you do that the more you reduce its weight, but at the same time you reduce its quality, perhaps.

Question. It is my experience that washing in brine adds to the weight of the butter?

Answer. I have made no practical tests, but theoretically I would say that the more you get the caseous matter out of it, the lighter it would be. You could get at it by taking two parts of cream and treating them differently, and see how you would come out.

Question. Probably the butter will absorb more brine?

Answer. I hardly think so, because in the way they wash their butter it is perfectly fresh. Washing will take all the brine out so that you cannot perceive any taste of brine. You can take butter that has been kept a year in granulated form and wash out every bit of the salt, because the salt simply adheres to the fat, and all the salt there is in the butter is what adheres around these particles.

MR. HOSTETTER: Have you had any experience in working granulated on a table? It seems to me that the lever or rake, whatever you use, will injure the granules more or less; it will put it together in chunks more or less, which will not take the salt.

Answer. That depends upon the temperature of your butter—the temperature of your dairy-room.

Question. How is the best way to stir it in the salt?

Answer. You stir it in with a paddle or rake. The Hon. Harris Lewis stirred it with a paddle. He worked butter in a room that was always kept at a low temperature—below 60, 55 or 50. He had a ventilator so arranged that he kept the temperature down where it ought to be. Nobody ought to attempt to make butter in these times unless they have some such conveniences.

Question. Do you not think that two or three washings is a detriment to the butter?

Answer. No, sir; I do not think any number of washings hurts butter. You do not wash anything out of it except what is on the surface; but if you take it on to a butter-worker, of course, the more you work it the more you injure it, but where you do not break the globules, you do not injure it a particle.

Question. Is not the butter-worker one of the greatest enemies of good butter that we have to contend against?

Answer. It is not an enemy. All that you have got to do is to leave it alone.

MR. GILLIS: Is it not a fact that American salt can be sold cheaper than imported salt?

Answer. O, it can be sold cheaper, of course. There is no duty or such charges of transportation.

MR. GILLIS: Is it not a fact that some of the American salts are gaining in favor among factory men?

Answer. No, I do not think it is. A few years ago American salt was made very nice, but of late it is rather depreciating in quality. I always think it is safe to use the best thing when you are trying to make a good article; but if you are simply making an article to sell and consume immediately—show off on the market—it does not make much difference.

Question. I want to ask if butter in a granulated form can be moved from the churn directly to the tub and not compacted except in the tub?

Answer. Yes; I have seen it done by Mr. Leslie and others.

MR. HOSTETTER: I do not think it is a question whether it can be done. Prof. Henry comes here and tells us what he has done in feeding calves. The question for us in all these matters is whether it is practical.

THE PRESIDENT: The best way to find out is for us to go home and try it.

THE SECRETARY: Mr. J. R. Morin, of Cedar Rapids, of whom Mr. Curtis spoke, is running eight creameries in Iowa.

THE PRESIDENT: I want to say a word in regard to salt taking odors from anything around it. I one time had some salt remain in our depot at De Kalb some time, and when I came to use that salt, the butter-maker found it tasted of carbolic acid. We could not tell how it happened, and we found that it was taken from the coal tar used in our town to cover barbed wire with. The depot was full of it, and it spoiled the salt. I tried to get pay for my salt from the railroad company, but I could not, and I had to feed it to my pigs.

BOOK-KEEPING ON THE FARM.

BY E. L. LAWRENCE, BELVIDERE, ILL.

When asked to prepare a paper for this meeting, I replied, "I am not a dairyman." When this objection was met and overcome, I replied, "I am not a farmer. For five years the current of my thoughts and my reading has been in another channel." We, at this time, are supposed, in all progressive movements, to beat our progenitors of 100 years ago at least four to one. History repeats itself. The five years that I have slept exactly corresponds with the twenty years sleep of my illustrious prototype. If I am a little old-fashioned or behind the times, like Rip Van Winkle, I offer this as an excuse.

The object of farming is to make money. The object of book-keeping is to show what has been accomplished—where money has been made or lost. Bookkeeping on the farm means systematic farming, not book farming, but farming by some systematic plan, and keeping an account of the results. As book-keeping will regain a plan or system in farming, and such a plan to be successfully carried out will demand that accounts be kept and results noted, the one involves the other and may be considered as synonymous terms.

I thus define the title to this paper, and by such definition shall not confine myself to the simple matter of keeping accounts on the farm, but shall roam over the field at leisure, picking up a morsel here and there as occasion seems to demand. Before going further I will more definitely define my position.

As the object in view in farming is to make money, not this year only, but the next and the following years, the necessity of keeping up the fertility of the soil becomes apparent. The lands of the farmer constitute, in a majority of cases, a large share of his capital. If the farm be allowed to become less fertile or productive, the farmer is living off of his invested capital, and not from profits. Further, book-keeping on the farm means something more than noting the result in dollars and cents, of profits and losses on the farm, and this should be the first thing attempted in systematic farming. I will here name it. It will be a diagram of the farm, dividing it into lots, assigning different crops to each lot for the present and succeeding years. This we will call a system of rotation of crops.

As book-keeping demands a system in farming, and a system demands rotation of crops, rotation of crops will demand that the farm be thoroughly drained, in order that all the farm may come under the plow as this rotation proceeds. The advantage of tile-draining has been so often demonstrated and admitted, that I shall not stop here to repeat what has been so often said. These benefits are found on pasture land (perhaps less at first view) as well as on cultivated fields.

How shall we know what land needs draining? is a question often asked. I reply: below or at the surface of all land is what is known as *water line*, that is, where water will stand or run if a ditch be dug in a wet time; not during a shower, but say twenty-four hours thereafter. If water will run in such a ditch, say 2 feet deep, at such a time, the land needs draining; if not, it needs no draining.

So, by this it will be seen, that draining on our moderately rolling prairies

is not an expensive item. Often one line of tile is all that will be required in crossing a 40 acre lot, that is, commencing at the head of a ravine, and following its course across such a piece of ground, will put the whole in shape to be plowed.

We may now consider the farm drained, and ready for a diagram to show prospective crops for a series of years.

Before proceeding I wish to say a few words in parenthesis. I do not accuse farmers of any lack in laying plans, by no means; nor of any lack of making good plans. On the contrary, plans are made without number or measure, all of them good, no doubt; but few, if any, are carried out or carried forward more than one or two years before new ones are made. I once, on an occasion not unlike the present, ground out a fable. I will repeat it with some alterations.

Once on a time, two dogs went out to hunt game. To all appearances they were very much alike in speed and endurance. The first struck a track and started in to pursue the game with great vigor, making the woods and fields resound with his loud baying, so that listeners near and far said, "That dog has a good thing." Directly he discovered another track that looked to him fresher or larger game; so he switched himself off to the new track, and howled louder than before. Again and again he repeated this operation, pursuing fresh game all the time, till, at night, he went home tired and disappointed, saying, "No dog can catch such game." The second also struck a track, and followed it without much racket, and without changing his purpose, till early in the day the game was caught, and he went home to spend the afternoon in quiet and happiness.

We often meet men who have tried this, that and the other branch of farming, who will tell you that these are the hardest times; that this is the worst country; that farming is the hardest and least paying business, etc.

It would seem to me to be folly to say that we give too little attention to raising horses, hogs, sheep or cattle; or that we raise too little corn, oats, rye or barley, as the case may be. Enough being raised for the market proves my position. There seems to be a cyclone of these ideas sweeping over the country periodically, and many farmers trim their sails as often, for any gale that may come along. By this practice we invest in one kind of stock, or one branch of farming, when everything pertaining to that branch is high, and go out when it is low, always meeting a loss. Then the loss on tools and machinery bought and used one or more years, and then laid aside, (something having been met that promises better,) if computed, would make an item startling to behold. Therefore I would say, inasmuch as this changing of plans by most enterprising farmers has been to themselves a cause of great loss, *make your plans and stand by them.*

In mapping out the farm with a view to a system of rotation of crops, much will, of course, depend on the crops the farmer expects to raise, and the stock he expects to grow.

For ten years, as many of you know, the author of this paper was manager of the farm of the then Illinois Industrial University, now Illinois State University. I will give the plan of crops there adopted, which was not changed in the time mentioned. The rotation was sometimes set back a year on account

of failure in seeding, but was carried out as far as circumstances would admit. It was as follows: One half of the farm is grass, meadow and pasture; of the remaining half, two-thirds corn, and one-third small grain. To complete the rotation under favorable circumstances, required six years. To illustrate: let the farm be divided into six lots or fields; one, two and three in grass; four and five in corn; and six in small grain with seeding—timothy or clover, or timothy and clover.

The first year, number one will be broken and planted to corn; two and three will remain in grass; four will be corn; five small grain, with seeding; and six, seeded the previous year, will be grass. Second year, one will be corn; two, broken and planted; three, remain in grass; four, small grain seeded; five and six, grass, and so on. The improvement in productiveness of this farm, which was an old and much worn one, was, to say the least, very satisfactory. I could give figures to prove this, but figures, however instructive when studied, are dull when simply read over, so I will forbear.

It may be expected, from the title of this paper, that I will have something to say about "Book-keeping on the Farm"; or that I try to give the forms and so forth, of accounts to be kept by the farmer. Were I to give a paper on the necessity of farmers reading to inform themselves, it would not be expected of me to attempt to instruct you in reading, this art being taught in the schools. It might also be expected that the graduates of our high schools would come out accomplished accountants. Is this expectation verified? They will tell us the names of rivers in Kamschatka; the number of Jupiter moons and their phases; solve the most brain-racking propositions in mathematics; recite Cæsar's Commentaries; in short, delve in the unfathomable and soar in the infinite; yet, when asked to show a common business transaction on paper, they are lost. I think you will say, "These things ought not so to be."

Farmers' accounts are different from most or all others in that he receives and pays out money in many instead of one particular place. For this reason he will provide himself with a common memorandum book to be carried in the pocket, in which every transaction involving dollars and cents will be noted—these items to be assorted and transferred to the ledger at leisure.

There are many "Farmers' Account Books" in the market, with rulings, headings, etc. I think if you procure one of these and look it over, you will conclude that there is too much waste room in them—like our undrained lands, and do as I did—give it to the children for a scrap book, and procure a common ruled ledger.

January 1st is the time that we form good resolutions and reform from our bad habits; this is a good time to commence our book-keeping.

The first will be to take an inventory of the farm, stock, teams, tools, grain, and everything of value on the farm or that the farmer owns, deducting bills payable from bills receivable, and saying, "I am worth so much" (as household goods are of such uncertain value when once placed in the house, it may be thought best to leave these out entirely). If this inventory be repeated at the end of the year—adding to real estate the value of permanent improvements, the loss or gain of the year will be shown. The cost of crops must, in the main be estimated; their worth can be more easily ascertained if a balance be struck between cost and value of different crops, and this balance be compared with the balance as shown by inventory errors in estimates will be exhibited.

Estimates may be made of cost of crops as follows: It costs so much for plowing an acre, so much for cultivating, etc., making these estimates by the acre. I have been surprised to see how nearly these estimates will compare with actual cost of the year's operations as shown by inventory.

I have thus briefly defined my position; perhaps too briefly. Yet I hope you understand what I mean by "book-keeping on the farm," or systematic farming. There is a branch of farming in specialties, (all right for those of a speculative turn, who want to go faster than by the common slow farmer's wagon,) with which I am not dealing. Dairying in northern Illinois is not a specialty, but a regular appointment of the farm.

What of the conclusion?

I said in the beginning "this is a fast age." Speed may be a good thing. It is a good thing to get rich; it may, or it may not be a good thing to get rich quickly. When our great haste defeats the very ends in view, then there is something wrong. We hear it said often, "There is Old Poke getting rich, new house and barn, fine carriage, and money in the bank, yet he never reads anything but the almanac, and can scarcely write his name, while Young Enterprise has his farm all plastered over with mortgages."

To give another figure. We start out with our Maud S. at a rapid rate; double our track and come back to try another road; go cross-lots to a third, break the rigging, etc.; neighbor starts with Old Slow-and-go-easy-tail-full-of-burrs, and beats us two to one. It may be satisfying to go fast while going, but if we come up at our starting place like the fast horses at our agricultural—cul-tur-al—fairs, what has been gained?

The enterprising farmer goes to a sale and buys things he does not need—makes a sale and sells things he needs; runs in debt for more land when what he has is not half tilled; spreads himself on all large things and neglects the small items. Thus neglecting Poor Richard's advice to mind the pennies, as the pounds would take care of themselves. Now, enterprise is a good thing, but should lead us in the right direction. Speed is a good thing, but let us temper it with moderation. In other words, let us go fast slow; education and learning are good things, but let them be perverted—directed in the wrong course—and they become the opposite.

Let the farmer's boy, while in school, neglect his comic sections to study book-keeping; let him neglect his Greek to apply this book-keeping by keeping and studying the accounts of the farm, and he will have something useful as well as ornamental, when education becomes practical, instead of all theoretical; then, while the uneducated man may succeed, the scientific man will be *sure to triumph*.

All will remember that charming story so often repeated in our younger days, where ox began to drink water, water began to quench fire, fire began to burn stick, stick began to beat kid, kid began to go. Now, if any farmer begins to systemize his farming, keep his accounts, drain his fields, rotate his crops, and his bank account begins to grow, I shall be satisfied.

DISCUSSION.

MR. AVERY: How much experimenting is allowed to be prosecuted at the State farm?

Answer. Well, it was not much.

PROF. HENRY: Is the farm expected to pay?

Answer. I do not know what it is expected to do. I know what it did while I was there. I left \$6,660 in the treasury, but, mind you, I had only the part of the farm which was expected to pay. The experimental part was another thing, and did not pay at all.

Question. Is there any appropriation by the State to defray the expenses of experimenting?

Answer. I have not noticed any in several years. There used to be.

Question. Do you know whether the instructions to Professor Morrow are that he shall make the farm pay?

Answer. They are not now. It is more now with a view to make things look well and present a good appearance.

MR. WHITE: Prof. Morrow told me at Champaign that the Board of Directors did expect the farm to pay, and that his hands were tied in that respect.

MR. CURTIS: A motion was made by Mr. Dillie, yesterday, which was carried, in regard to getting an appropriation from our State Legislature. Now, that is a good ways off, and yet it is well enough to be taking steps in that direction. Our State Senator has a bill before the present Congress with a view of making appropriations to each State of this Union for an experimental farm. Now, Mr. President, I move you that the duties of that committee be also to memorialize Congress in behalf of the appropriation for the State of Illinois for an experimental station in this State of Illinois, and also that each member of the Illinois State Dairymen's Association be requested to write his Congressman, asking him to encourage that bill, regardless of any political views whatever.

Motion seconded.

PROF. HENRY: I wish to speak for one moment upon this motion. I am delighted that the gentleman should bring it up at this time. Do you know that the United States government has been doing a flourishing business and large amounts of money have accumulated in the treasury, and our Members of Congress have been worried as to how they shall dispose of it. There is a bill known as the Cullom bill, that there shall be given to each State in the Union an annual appropriation of \$15,000, which shall be used for conducting experiments in agriculture. Only a small part can be used for buildings; it must be used for current expenses. Now, a member from your State having introduced that bill, it seems to me that Illinois should back him up in advance of all other States. You need the money and you need the work. You have done less than any other State, and now you have a chance by rapid strides to place yourself at the fore. I hope to see the measure carried by a unanimous vote, and I hope that every member here will drop a postal card to their Senators and United States Representatives, and ask them to see the thing put through. All they need is a little urging.

Motion carried unanimously.

Convention adjourned to meet at 2 P. M.

DIRECTORS' MEETING.

The Directors met for the purpose of organizing and selecting a place for the next annual meeting.

H. B. Gurler, of De Kalb, was elected President; W. R. Hostetter, of Mt. Carroll, Vice-President; R. P. McGlinchy, of Elgin, Secretary, and J. H. White, of Aurora, Treasurer.

The following invitations were received:

AURORA, ILL., December 8th, 1885.

To the Board of Directors of the Illinois State Dairymen's Association.

GENTLEMEN: You are invited and earnestly requested to hold your annual convention the coming year at Aurora, Kane County, Illinois. We hereby tender you the hospitality of our city, pledging you the courtesies usually extended this Association, and feeling that we may be materially benefited by your acceptance of our invitation, we would respectfully urge upon your honorable body its careful consideration. As most of your number are aware, this is the third successive year this invitation has been extended this body, and we feel it should at this time receive your special consideration.

Yours respectfully,

On behalf of the Mayor and many citizens.

J. H. WHITE.

Mt. CARROLL, ILL., December 4th, 1885.

The Carroll County Stock-Growers' Association extends a cordial greeting to the Illinois State Dairymen's Association, and invites them to hold their next annual meeting in the city of Mt. Carroll, Ill.

E. BAILEY, *President.*

A. B. HOSTETTER, *Secretary.*

On behalf of the Carroll County Stock-Growers' Association.

We, the undersigned, citizens of Mt. Carroll and vicinity, invite the Illinois State Dairymen's Association to hold their next annual meeting in our city. We promise to do all in our power to make this meeting in our city pleasant and profitable, and will furnish a suitable hall for holding the meeting free of charge to the Association.

LEO PHILLIPS,
LICHY & STEUKEMILLER,
COL. DAN BAWDEN,
G. W. NYCUM,
SAMUEL J. CAMPBELL,
W. S. CRAMARY,
CARROLL COUNTY HERALD,
per Frazer.

McKENNEY BROS.,
E. HOSTETTER,
N. RINEDALLAR,
J. D. NESBITT,
A. B. HOSTETTER,
G. C. KENYON,
G. M. WHIRRETT,
J. H. BUSHEY,
B. LEPMAN & SON,
C. LANG,
WM. H. WILDEY,
A. A. FOSTER,
N. H. HALDMAN,
JOSEPH SPEALMAR,

GEO. L. HOFFMAN, *Mayor.*
O. P. MILES, A. M.,
H. ASHWAY,
THOS. S. ENNIS,
JOSEPH WARFIELD,
DRESBACH & HOLLINGER,
HOLMAN & LUDWICK,
F. W. NOHE,
GEO. R. CHRISTIE,
A. VAN PATTEN,
H. B. MCCracken,
J. W. MILLER,
E. C. & J. A. WHITE,
VANDAGRIFT & HALLETT,
D. O. BLAKE,
A. R. BOWMAN,
E. KERHELS,
E. T. E. BECKER,
THOMAS D. DAVIS,
G. F. BECHER,
J. C. GELWICKS,
J. G. BLAKE.

The Directors voted to accept the invitation of Aurora, Ill., and to hold the thirteenth annual convention in that city, on Wednesday, Thursday and Friday, December 8, 9 and 10, 1886.

Convention met pursuant to adjournment at 2 o'clock, P. M., the same day.

Appointment of Committee on Experimental Station.—E. E. Chester, S. K. Bartholomew, John Boyd and H. B. Gurler.

RESOLUTIONS OF THANKS RENDERED.

The Committee on Resolutions reported as follows :

That the thanks of the Association be tendered to the citizens of Belvidere and vicinity for substantial aid, and to their local committees for efficient service in perfecting arrangements ;

To the Apollo Club, of Belvidere, and the Belvidere Quartette for their enlivening and cheering "variations from the old masters," who devote themselves to the serious work of the convention ;

To Prof. W. A. Henry, of the Wisconsin University, for instructive and valuable essays and remarks ;

To essayists and speakers from abroad and among our members, some of whom have given their service by special request ;

To local newspapers for free advertising and reporting, and to the C. & N.-W. Railway for favors received in the matter of transportation.

Report adopted.

C. F. DEXTER, *Chairman Committee.*

TREASURER'S REPORT,

FROM DEC. 19TH, 1884, TO DEC. 9TH, 1885.

AURORA, ILL., Dec. 9, 1885.

To the Illinois State Dairymen's Association :

1884.

Dec. 19. Cash on hand.....	\$706.75
Dec. 19. Cash received for membership fees.....	32.00

1885.

Aug. 4. Cash received from President H. B. Gurler.....	499.25
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Total amount received.....	\$1,238.00
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1884.

Dec. 19. Cash paid, hotel bill for stenograph reporter.....	\$4.85
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1885.

Jan. 6. Cash paid R. P. McGlincy, secretary fees, for report of meeting of 1884.....	150.00
Jan. 6. Cash paid R. H. Kelly, stenographic reporter.....	55.20
Jan. 6. Cash paid R. P. McGlincy, R. R. fare, expressage, etc.	15.85
Mar. 5. Cash paid R. R. fare of officers and invited speakers at convention.....	35.98
Mar. 5. Cash paid A. H. Lowrie, printing.....	204.65
Mar. 31. Cash paid R. P. McGlincy, postage, etc.....	6.80

Total amount paid out.....	\$473.33
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Leaving a balance in Treasurer's hands of.....	\$764.67
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All of which is respectfully submitted,

J. H. WHITE, *Treasurer.*

REPORT OF SECRETARY.

The Secretary can only report that within a short time after the meeting held at Champaign in 1884, the proceedings were issued in pamphlet form and distributed to the members. Copies were also sent to the members of the State legislature, and to all others who made application for them. The report has been called for quite extensively outside of the State, and, in some cases, the Secretary did not feel warranted in sending it, because they failed to send the amount necessary to cover postage, and as our funds were limited, and our appropriation so tied up, many of these reports, called for from New York and the Eastern States, were not sent. Occasionally, however, when the secretaries or officers of agricultural societies made application we sent them, and we exchanged these reports with the officers of like associations in the West and in the East.

Since the meeting at Champaign, the Association has had but one occasion to take any action in any matter of special importance, and that was during the spring when the question was being agitated in the legislature of Illinois of prohibiting the sale and manufacture of butterine. The officers of the Association, by their efforts, aided the dairy farmers and the manufacturers of creamery butter to secure the adoption of such a law, and to that end the Association authorized the issuing and mailing of circular letters to all the creamery men and the dairy farmers that could be reached, urging them to write to their representatives and State senators to labor for the adoption of a law of that nature. Further than that the Association has had no business or work through the interim, but has continued to watch over the matters of the dairy in the State to the best of its ability, and will continue to do so during the coming year.

REPORT OF PRESIDENT.

The President has only to report in regard to receiving and turning over the appropriation from the State. I received from the State Auditor a check on the State Treasurer for \$500.00. It cost me 75 cents to get it cashed, and the balance was turned over to our Treasurer. I would confirm the point that our Treasurer mentioned, as to the way we are tied up in spending that appropriation. We can simply use it in compiling and distributing the reports of our convention.

STOCK AND GRAIN-GROWING WITH DAIRYING.

BY G. E. MORROW, PROFESSOR OF AGRICULTURE, UNIVERSITY OF ILLINOIS.

There is confessed wide-spread depression in the dairy interest of the country. This depression is not greater than that under which many classes of business and almost every branch of agriculture is resting; but is especially noticeable from its contrast with the exceptional prosperity of this great interest during most of the last twenty years.

I do not look to the future with discouragement. There seems to be no doubt of some lightening of the general business dullness in the near future, and this will be felt by dairymen. There has been a decided check in extension of dairying, and the increase in population will give an increase of demand.

While I count it inevitable that imitation dairy products or substitutes for them will continue to be made in large quantities, I do not believe this is necessarily a bar to profitable dairying. With well-enforced laws compelling the sale of these imitations under properly descriptive names, I do not believe the demand for good dairy products will decrease.

Certainly I would not advise dairymen to abandon the business, nor to go on in a half-hearted way. But, more than in times of marked prosperity, it will be necessary to carefully consider every available means for increasing profit, and I simply suggest one line of action.

I lose none of my conviction that some diversity of product is best for most farmers, as well as for most agricultural regions. Exclusive attention to one branch of farming sometimes is best; sometimes, also, he succeeds who has many irons in the fire—who undertakes “to do a little of everything.” I count either a dangerous extreme.

As I see it, increased attention to stock-rearing and feeding, and to grain-raising, may wisely be given by many dairymen. I know the plausibility of the arguments in favor of devoting the whole farm to the dairy cows; buying cows as those on hand fail; buying feed for them, etc. But I also know that, in practice, many ingenious calculations prove faulty. Especially in times of close margins for profit, it is important for the farmer to fully use his land and his labor, personal and hired, as well as that of his teams and machinery. Growing more grain will enable some dairymen to more nearly do this. Grain growing for sale usually gives poor returns, but growing the grain he feeds, so far as is practicable, is not a bad plan for the dairyman. There are advantages in old pastures or meadows; but we have all seen many such in the dairy regions of Illinois which most of all needed plowing up, and which were well fitted to produce two or three good crops of corn and oats, perchance of wheat; then re-seeded, they would give larger yields of better grass than now.

Who is better fitted for rearing first-class cows for the dairy than is the experienced dairyman? He knows what is wanted. He ought to have a good breeding herd if he choose to rear graded stock. He, equally with any other man, should be able to make a profit from rearing pure-bred cattle. Especially is it true of butter-making dairymen that they have good facilities for rearing cattle. I count the manufacture and sale of poor skim cheese one of the serious mistakes of Illinois dairymen, and believe it a better, more politic and more profitable use of skim milk to feed it to calves or, in default of them, to pigs. In common with very many others I have for years shown the easy practicability of rearing really good cows and steers, using no whole milk after the calves are ten days or two weeks old. It seems to me clear that there is a profit, even at present low prices, in producing good cattle, with economical methods, where the advantages for marketing them are so good as those in the chief dairy region of Illinois.

It not unfrequently happens that the work essential in caring for the dairy cows and the milk, with that which is necessary on all farms, requires men and teams who cannot all be profitably employed all the time under the exclusive dairy system. In such cases the rearing, feeding and general care of stock and the growth of something of an increased acreage of grain would seem a natural and profitable resource.

DISCUSSION.

MR. LESPINASSE: Before this convention adjourns, I want to call the attention of those here to the great importance of keeping the agricultural press properly patronized, and I can say it more openly, that I have no interest whatever in any publication. I am requested to say, by one of the publishers of one of our agricultural papers, the *Prairie Farmer*, that they offer \$100,00, which will be distributed according to some announcement in the paper, for the best essays on practical dairying, furnished by subscribers to the paper. I believe it is our duty, and a duty that we will find profitable, not only so far as it will support the newspaper, but also as far as it will enlighten your minds.

DISCUSSION ON MILK FEVER.

MR. DUBOIS: I want to find out whether there is any preventative of milk fever, or in case there is an attack, whether there is any cure. I have lost one very valuable cow with it this season; then I had two more that were coming in, in hot weather, on grass, and I shut those up about two weeks on dry feed, and the first one was all right; next one was treated in the same way and I lost her. I had still another taken with it, but not so severely, and we succeeded in saving her.

MR. BOYD: I have had considerable experience, but I have not found any remedy, and I do not know anybody that has. I understand that some gentlemen have succeeded in curing cows with a concoction of kerosene oil, lard and new milk—about a pint of kerosene oil, three pints of lard and a sufficient quantity of new milk to make an emulsion. That ought to be given as soon as the cow is first taken and repeated in about two hours; then again in two hours. I think there is something in it. It comes from good authority—as good authority as Major Campbell Brown, of Tennessee. He reports that in two cases he had immediate relief. The aconite remedy has been tried in many cases, but always failed. The first symptoms I have noticed are a kind of staggering, partial paralysis and immediately afterwards they fall down, and never get up until they die or get well. I relieved my cows considerably by keeping ice on their heads between the horns. There was a cow at the Fat Stock Show that dropped a calf, and she died in about thirty-six hours. They had all the skill of the veterinary profession in the city, but they do not seem to know anything about the disease. It is always the good conditioned cows that are taken with this sickness, and the best milkers. A good many people believe in giving a dose of salts as soon as the calf is dropped as a preventative. I think the remedy for this disease is in preventing it, not in curing it. Dry feed is constipating—it is not good under such circumstances. Timothy hay is very indigestible. I think they should be fed loose and cooling feed, something that will loosen instead of constipating the bowels.

MR. LAWRENCE: I saw in an English agricultural periodical some time ago it was recommended that cows that were fleshy, and that those that were subject to the disease, that they be bled a few days before they dropped their calves.

MR. STOCKWELL: I lost a cow last summer with the milk fever, and a few days afterwards I was talking with a dairyman from Rockford, and he said

when he first commenced keeping cows, for eight years he lost on the average a cow a year, but later on he had kept his cows on a cool shady pasture in the summer, when the grass was short, and in winter kept them on light feed, and as soon as they came in gave them four to six quarts of flax seed with a little saltpetre, and he had not lost a cow, and he kept from forty to fifty cows all the time. I have tried it since and have not lost any. A neighbor of mine claims he has saved two cows by giving saltpetre.

MR. ALLEN: My boys have had four cases of the kind, and never lost either one of them, and our remedy has been hot water bags over the loins and across the kidneys. It has relieved them in every case.

DR. TEFFT: Years ago a man who was living on my farm lost quite a number of cows, with what he called milk fever, and I examined those cows, and it proved to be inflammation of the Peritoneum of the womb. The cow may take on that disease before she calves. I suggested to this man to bleed his cows before they came in. He did that, and even after he bled his fleshy cows, those that were taking on food liberally, and he told me he never lost a cow afterwards.

Question. How much blood did you take, doctor?

Answer. Well, at different times, different amounts. A common ordinary bleeding would be a gallon. We bled only once or twice before coming in, about a week before.

MR. LAWRENCE: The English paper I referred to said that bleeding was a sure cure.

DR. TEFFT: I do not think it is always, but I think it will relieve more, and there will be less danger of it, if the cow is very fleshy.

Question. Is there anything in the nature of saltpetre that will thin the blood?

Answer. We use saltpetre in fever. I would put more confidence in epsom salts.

The convention adjourned *sine die*, and thus closed one of the most interesting conventions held in the State.

ATTEST:

R. P. McGLINCY, *Secretary.*

REPORT OF THE COMMITTEE TO VISIT SPRINGFIELD.

At the request of the Illinois State Board of Agriculture, a Committee was appointed by the State Dairymen's Association at their annual convention at Belvidere in December last, to meet with the State Board at their January meeting at Springfield. The Committee consisted of C. C. Buell, Lovejoy Johnson and H. B. Gurler. Mr. Buell died December 30th, and Mr. L. M. Potter, a member of the Board of Directors of the Association, was added to the Committee. The Committee visited Springfield at the appointed time, and were very cordially received by the Board of Agriculture. We found some of the members quite sore from the lashing received from the agricultural papers, for their action in admitting butterine at the Fat Stock and Dairy Show, at Chicago, in November last; but the worst hurt members worked hard in our interest. Your Committee introduced the following resolutions:

WHEREAS, The State Board of Agriculture is in sympathy with all the legitimate business represented by their constituents ; and

WHEREAS, The laws passed by the legislatures of the States, to regulate the manufacture and imitations of or substitutes for butter, are greatly at variance, and have failed to protect consumers of butter from impositions ; and

WHEREAS, While we do not favor any attempt to suppress or prohibit the manufacture or sale of butter substitutes not injurious to health, we are in favor of compelling them to be sold by all parties, from manufacturers down to consumers, under their true and proper name ; therefore be it

Resolved, That we respectfully request Congress to enact a law putting the manufacture of oleomargarine, butterine or any substitute for or imitation of butter, under the control of competent Government Inspectors, to the end that such articles shall be branded and sold under their proper names and on their merits.

The butterine interest offered the following as a substitute :

Resolved, That this Board is in favor of the establishment, by Congress, of a National Bureau of Inspection, for the purpose of securing, by the most effective system possible, the suppression of the manufacture and consumption of all unwholesome, adulterative, deceptive or fraudulent preparations, and the sale of any article or commodity used as human food, drink or medicines.

The matter was under discussion by the Board from 9 o'clock a. m. until 3 o'clock p. m., when President Landrigan referred the matter to a Committee of five, as follows : Gillham, Chester, Reynolds, Lewis and Washburn. Said Committee reported a majority and a minority report. The majority report was signed by Gillham, Chester and Lewis, and embodied the essential points of our resolutions. All the changes made received the approval of your Committee. The minority report was signed by Reynolds and Washburn, and contained nothing of itself objectionable, though the object was plainly to kill our resolutions by substituting something which covered so much ground that it would kill itself. These reports were discussed at some length, and finally the majority report was slightly amended ; when the minority report was laid on the table, and the majority report was passed unanimously.

Your Committee consider that resolutions from our State Board of Agriculture will have weight in Congress, and the butterine interest was evidently of the same opinion, or they would not have contested the matter a whole day.

The following are the resolutions as passed :

WHEREAS, The State Board of Agriculture is in sympathy with every effort to secure pure and wholesome food for the human family ; and

WHEREAS, There seems to be, at present, no adequate protection against unwholesome and deleterious adulterations of dairy products afforded by law ; therefore be it

Resolved, That we respectfully request Congress to enact a law placing all dairy products and all imitations of or substitutes for the same under the control of a competent Government Inspector, to the end that such articles shall be branded and sold under their proper names, and on their own merits.

Resolved, That we respectfully direct the attention of Congress to the unwholesome adulteration of other food products, and pray for proper legislation for the adequate protection of the people from the same.

One thing was very evident to your Committee : that was, that most of the members of the Board are heartily in sympathy with the dairy interest of our State. We found them a very intelligent body of men, and above suspicion of the charge made against them by some of the agricultural papers. While most of them are farmers, they are but little interested directly in dairying, and have not given the matter the thought that the dairymen have, and have not looked at it from the dairymen's standpoint.

H. B. GURLER,
LOVEJOY JOHNSON,
L. M. POTTER,
Committee.

BY-LAWS OF THE ILLINOIS DAIRYMEN'S ASSOCIATION.

OFFICERS.

SECTION 1. The officers of this Association shall consist of a President, Vice-President, Secretary, Treasurer, and Board of Directors composed of seven members, of whom the President and Vice-President of the Association shall be members, and the President *ex-officio* chairman.

DUTIES OF PRESIDENT.

SEC. 2. The President shall preside at the meetings of the Association and of the Board of Directors. It shall be his duty, together with the Secretary and Board of Directors, to arrange a programme and order of business for each regular annual meeting of the Association. He shall have power to call special meetings of the Association and of the Board of Directors, and upon the written request of five of the members of the Association it shall be his duty to call such special meetings. It shall be his further duty to call on the State Auditor of Public Accounts for his warrant on the State Treasurer for the annual sum appropriated by the Legislature for the use of this Association, present the warrant to the Treasurer for payment, and on receiving the money receipt for the same, which he shall pay over to the Treasurer of this Association, taking his receipt therefor.

DUTIES OF THE VICE-PRESIDENT.

SEC. 3. In the absence of the President, his duties shall devolve upon the Vice-President.

DUTIES OF THE SECRETARY.

SEC. 4. The Secretary shall record the proceedings of the Association and of the Board of Directors. He shall keep a list of the members, collect all the moneys due the Association (other than the Legislative appropriations), and shall record the amount, with the name and post-office address of the person so paying, in a book to be kept for that purpose. He shall pay over all such moneys to the Treasurer, taking his receipt therefor. It shall also be his duty to assist in making the programme for the annual meeting, and at the close of said meeting to compile and prepare for publication all papers, essays, discussions, and other matter worthy of publication, at the earliest day possible, and shall perform such other duties pertaining to his office as shall be necessary.

DUTIES OF THE TREASURER.

SEC. 5. The Treasurer shall, before entering on the duties of his office, give a good and sufficient bond to the Directors of the Association, with one or more sureties, to be approved by the Board of Directors, which bond shall be conditioned for a faithful performance of the duties of his office. He shall account to the Association for all moneys received by him by virtue of said office, and pay over the same as he shall be directed by the Board of Directors. No money shall be paid out by the Treasurer except upon an order from the Board, signed by the President, and countersigned by the Secretary. The books of account of the Treasurer shall at all times be open to the inspection

of the members of the Board of Directors, and he shall, at the expiration of his term of office, make a report to the Association of the condition of its finances, and deliver to his successor the books of account, together with all moneys and other property of the Association in his possession or custody.

DUTIES OF THE BOARD OF DIRECTORS.

SEC. 6. The Board of Directors shall have the general management and control of the property and affairs of the Association, subject to the By-Laws.

Four members of the Board shall constitute a quorum to do business.

The Board of Directors may adopt such rules and regulations as they shall deem advisable for their government, and may appoint such committees as they shall consider desirable.

They shall also make a bi-ennial report to the Governor of the State of the expenditure of the money appropriated to the Association by the Legislature.

It shall be their further duty to decide the location, fix the date and procure the place for holding the annual meetings of the Association, and arrange the programme and order of business for the same.

ELECTION OF OFFICERS.

SEC. 7. The election of officers shall be by ballot at the first annual meeting to be held in December, A. D. 1883, and annually thereafter. They shall hold their offices for one year and until their successors are elected and qualified. A plurality vote shall elect. Vacancies occurring may be filled by the Board of Directors until the next annual election.

MEMBERSHIP.

SEC. 8. Any person may become a member of this Association by paying to the Treasurer such membership fee as shall from time to time be prescribed by the Board of Directors.

QUORUM.

SEC. 9. Seven members of the Association shall constitute a quorum for the transaction of business, but a less number may adjourn.

ANNUAL ASSESSMENT.

SEC. 10. One month prior to the annual meeting in December of each year the Board of Directors shall fix the amount, if any, which may be necessary to be paid by each member of the Association as an annual due.

Notice of such action must be sent to each member within ten days thereafter, and no member in default in payment thereof shall be entitled to the privileges of the Association.

AMENDMENT OF BY-LAWS.

SEC. 11. These By-Laws may be amended at any annual meeting by a vote of not less than two-thirds of the members present. Notice of the proposed amendment must be given in writing, and at a public meeting of the Association, at least one day before any action can be taken thereon.

OLEOMARGARINE AND BUTTERINE.

WHAT IS IT?

OFFICE OF

B. F. VAN VALKENBURGH,

Assistant New York State Dairy Commissioner,

350 WASHINGTON STREET,

New York, November 30th, 1885.

Messrs James H. Seymour, John S. Martin and Wm. H. Duckworth.

Gentlemen:—In reply to yours of this date requesting me to forward you a list, if I have one, of the different materials used by manufacturers in the manufacture of Oleomargarine and Butterine, would say in reply, please find a list comprising sixty different articles named by seventeen Patentees in their patents, and claimed by them to be used in the manufacture of Oleomargarine Oil, Neutral Lard, Oleomargarine Butter, Butterine, &c., &c.

Sulphuric Acid,
Castor Oil,
Chalk,
Slippery Elm Bark,
Caul,
Oil of Sesame,
Oil of Sunflower Seeds,
Olive Oil,
Curcumine,
Turnip Seed Oil,
Broma Chloralum,
Chlorate of Potash,
Nitre,
Oil of Sweet Almonds,
Oil of Peanuts,
Peroxide of Manganese,
Stomach of Pig, Sheep or
Calf,
Nitrate of Soda,
Bennie Oil,
Gastric Juice,

Mustard Seed Oil,
Nitric Acid,
Dry Blood Albumen,
Sugar,
Butyric Acid,
Bicarbonate of Potash,
Chloride of Sodium,
Caustic Soda,
Corn Starch,
Coloring Matter,
Sugar of Lead,
Bisulphate of Lime,
Saltpetre,
Borax,
Boracic Acid,
Salicylic Acid,
Benzoic Acid,
Orris Root,
Cotton Seed Oil,
Vegetable Oils,

Bitaric Acid,
Bicarbonate of Soda,
Nitrate of Potassa,
Glycerine,
Capsylic Acid,
Cuparic Acid,
Alum,
Capsic Acid,
Sulphite of Soda,
Cow's Udders,
Commercial Sulphuric Acid,
Pepsin,
Sal Soda,
Tallow,
Lard,
Sea Salt,
Farinaceous Flour,
Butyric Ether,
Caustic Potash,
Carbonic Acid.

Respectfully,

B. F. VAN VALKENBURGH,

Assistant New York State Dairy Commissioner.



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